

MEDICAL JOURNAL OF AUSTRALIA.

Vol. I.

SYDNEY : AUGUST 22, 1914.

No. 8.

Presidential Address

Delivered by

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at the Melbourne Meeting of the

British Association for the Advancement of Science,
on Friday, August 14, 1914.

Part I.

The outstanding feature of this meeting must be the fact that we are here—in Australia. It is the advances in science, to speak of the universal rather than of the particular or the temporary. There will be other opportunities of expressing the thoughts which this event must excite in the duller heart, but it is right that my first words should take account of those achievements of organisation and those acts of national generosity by which it has come to pass that we are assembled in this country. Let us, too, on this occasion, remember that all the effort, and all the goodwill, that binds Australia to Britain would have been powerless to bring about such a result had it not been for those advances in science which have given man a control of the forces of Nature. For we are here by virtue of the feats of function of a President to tell the Association of genius of individual men of science, giant-variations from the common level of our species; and since I am going soon to speak of the significance of individual variation, I cannot introduce that subject better than by calling to remembrance the line of pioneers in chemistry, in physics, and in engineering, by the working of whose rare—or, if you will, abnormal—intellects a meeting of the British Association on this side of the globe has been made physically possible.

I have next to refer to the loss within the year of Sir David Gill, a former President of this Association, himself one of the outstanding great. His greatness lay in the power of making big foundations. He built up the Cape Observatory; he organised international geodesy; he conceived and carried through the plans for the photography of the whole sky, a work in which Australia is bearing a conspicuous part. Astronomical observation is now organised on an international scale, and of this great scheme Gill was the heart and soul. His labours have ensured a base from which others will proceed to discovery otherwise impossible. His name will be long remembered with veneration and gratitude.

As the subject of the addresses which I am to deliver here and in Sydney I take Heredity. I shall attempt to give the essence of the discoveries made by Mendelian or analytical methods of study, and I shall ask you to contemplate the deductions which these physiological facts suggest in application both to evolutionary theory at large and to the special case of the natural history of human society.

Recognition of the significance of heredity is modern. The term itself in its scientific sense is no older than Herbert Spencer. Animals and plants

are formed as pieces of living material split from the body of the parent organisms. Their powers and faculties are fixed in their physiological origin. They are the consequence of a genetic process, and yet it is only lately that this genetic process has become the subject of systematic research and experiment. The curiosity of naturalists has of course always been attracted to such problems; but that accurate knowledge of genetics is of paramount importance in any attempt to understand the nature of living things has only been realised quite lately even by naturalists, and with casual exceptions the laity still know nothing of the matter. Historians debate the past of the human species, and statesmen order its present or profess to guide its future as if the animal Man, the unit of their calculations, with his vast diversity of powers, were a homogeneous material, which can be multiplied like shot.

The reason for this neglect lies in ignorance and misunderstanding of the nature of variation; for not until the fact of congenital diversity is grasped, with all that it imports, does knowledge of the system of hereditary transmission stand out as a primary necessity in the construction of any theory of evolution, or any scheme of human polity.

The first full perception of the significance of variation we owe to Darwin. The present generation of evolutionists realises perhaps more fully than did the scientific world in the last century that the theory of evolution had occupied the thoughts of many and found acceptance with not a few before ever the "Origin" appeared. We have come also to the conviction that the principle of natural selection cannot have been the chief factor in delimiting the species of animals and plants, such as we now, with fuller knowledge, see them actually to be. We are even more sceptical as to the validity of that appeal to changes in the conditions of life as direct causes of modification, upon which latterly at all events Darwin laid much emphasis. But that he was the first to provide a body of fact demonstrating the variability of living things, whatever be its causation, can never be questioned.

There are some older collections of evidence, chiefly the work of the French school, especially of Godron*—and I would mention also the almost forgotten essay of Wollaston†—these, however, are only fragments in comparison. Darwin regarded variability as a property inherent in living things, and eventually we must consider whether this conception is well founded; but postponing that inquiry for the present, we may declare that with him began a general recognition of variation as a phenomenon widely occurring in nature.

If a population consists of members which are not alike but differentiated, how will their characteristics be distributed among their offspring? This is the problem which the modern student of heredity sets out to investigate. Formerly it was hoped that

* De l'Espèce et des Races dans les Êtres Organisés, 1859.

† On the Variation of Species, 1836.

by the simple inspection of embryological processes the modes of heredity might be ascertained, the actual mechanism by which the offspring is formed from the body of the parent. In that endeavour a noble pile of evidence has been accumulated. All that can be made visible by existing methods has been seen, but we come little if at all nearer to the central mystery. We see nothing that we can analyse further—nothing that can be translated into terms less inscrutable than the physiological events themselves. Not only does embryology give no direct aid, but the failure of cytology is, so far as I can judge, equally complete. The chromosomes of nearly related creatures may be utterly different both in number, size, and form. Only one piece of evidence encourages the old hope that a connection might be traceable between the visible characteristics of the body and those of the chromosomes. I refer of course to the accessory chromosome, which in many animals distinguishes the spermatozoon about to form a female in fertilisation. Even it, however, cannot be claimed as the cause of sexual differentiation, for it may be paired in forms closely allied to those in which it is unpaired or accessory. The distinction may be present or wanting, like any other secondary sexual character. Indeed, so long as no one can show consistent distinctions between the cytological characters of somatic tissues in the same individual we can scarcely expect to perceive such distinctions between the chromosomes of the various types.

For these methods of attack we now substitute another, less ambitious, perhaps, because less comprehensive, but not less direct. If we cannot see how a fowl by its egg and its sperm gives rise to a chicken or how a Sweet Pea from its ovule and its pollen grain produces another Sweet Pea, we at least can watch the system by which the differences between the various kinds of fowls or between the various kinds of Sweet Peas are distributed among the offspring. By thus breaking the main problem up into its parts we give ourselves fresh chances. This analytical study we call Mendelian because Mendel was the first to apply it. To be sure, he did not approach the problem by any such line of reasoning as I have sketched. His object was to determine the genetic definiteness of species; but though in his writings he makes no mention of inheritance it is clear that he had the extension in view. By cross-breeding he combined the characters of varieties in mongrel individuals and set himself to see how these characters would be distributed among the individuals of subsequent generations. Until he began this analysis nothing but the vaguest answers to such a question had been attempted. The existence of any orderly system of descent was never even suspected. In their manifold complexity human characteristics seemed to follow no obvious system, and the fact was taken as a fair sample of the working of heredity.

Misconception was especially brought in by describing descent in terms of "blood." The common speech uses expressions such as consanguinity, pure-blooded, half-blood, and the like, which call up a misleading picture to the mind. Blood is in some respects a fluid, and thus it is supposed that this

fluid can be both quantitatively and qualitatively diluted with other bloods, just as treacle can be diluted with water. Blood in primitive physiology being the peculiar vehicle of life, at once its essence and its corporeal abode, these ideas of dilution and compounding of characters in the commingling of bloods inevitably suggest that the ingredients of the mixture once combined are inseparable, that they can be brought together in any relative amounts, and in short that in heredity we are concerned mainly with a quantitative problem. Truer notions of genetic physiology are given by the Hebrew expression "seed." If we speak of a man as "of the blood-royal" we think at once of plebeian dilution, and we wonder how much of the royal fluid is likely to be "in his veins;" but if we say he is "of the seed of Abraham" we feel something of the permanence and indestructibility of that germ which can be divided and scattered among all nations, but remains recognisable in type and characteristics after 4000 years.

I knew a breeder who had a chest containing bottles of coloured liquids by which he used to illustrate the relationships of his dogs, pouring from one to another and titrating them quantitatively to illustrate their pedigrees. Galton was beset by the same kind of mistake when he promulgated his "Law of Ancestral Heredity." With modern research all this has been cleared away. The allotment of characteristics among offspring is not accomplished by the exudation of drops of a tincture representing the sum of the characteristics of the parent organism, but by a process of cell-division, in which numbers of these characters, or rather the elements upon which they depend, are sorted out among the resulting germ-cells in an orderly fashion. What these elements, or factors as we call them, are we do not know. That they are in some way directly transmitted by the material of the ovum and of the spermatozoon is obvious, but it seems to me unlikely that they are in any simple or literal sense material particles. I suspect rather that their properties depend on some phenomenon of arrangement. However that may be, analytical breeding proves that it is according to the distribution of these genetic factors, to use a non-committal term, that the characters of the offspring are decided. The first business of experimental genetics is to determine their number and interactions, and then to make an analysis of the various types of life.

Now the ordinary genealogical trees such as those which the student books provide in the case of the domestic animals, or the Heralds' College provides in the case of man, tell nothing of all this. Such methods of depicting descent cannot even show the one thing they are devised to show—purity of "blood." For at last we know the physiological meaning of that expression. An organism is pure-bred when it has been formed by the union in fertilisation of two germ-cells which are alike in the factors they bear; and since the factors for the several characteristics are independent of each other, this question of purity must be separately considered for each of them. A man, for example, may be pure-bred in respect of his musical ability and cross-bred in respect of the colour of his eyes or the

shape of his mouth. Though we know nothing of the essential nature of these factors, we know a good deal of their powers. They may confer height, colour, shape, instincts, powers both of mind and body, indeed, so many of the attributes which animals and plants possess that we feel justified in the expectation that with continued analysis they will be proved to be responsible for most if not all of the differences by which the varying individuals of any species are distinguished from each other. I will not assert that the greater differences which characterise distinct species are due generally to such independent factors, but that is the conclusion to which the available evidence points. All this is now so well understood, and has been so often demonstrated and expounded, that details of evidence are now superfluous.

But for the benefit of those who are unfamiliar with such work let me briefly epitomise its main features and consequences. Since genetic factors are definite things, either present in or absent from any germ-cell, the individual may be either "pure-bred" for any particular factor, or its absence, if he is constituted by the union of two germ-cells both possessing or both destitute of that factor. If the individual is thus pure, all his germ-cells will in that respect be identical, for they are simply bits of the similar germ-cells which united in fertilisation to produce the parent organism. We thus reach the essential principle, that an organism cannot pass on to offspring a factor which it did not itself receive in fertilisation. Parents, therefore, which are both destitute of a given factor can only produce offspring equally destitute of it; and, on the contrary, parents both pure-bred for the presence of a factor produce offspring equally pure-bred for its presence. Whereas the germ-cells of the pure-bred are all alike, those of the cross-bred, which results from the union of dissimilar germ-cells, are mixed in character. Each positive factor segregates from its negative opposite, so that some germ-cells carry the factor and some do not. Once the factors have been identified by their effects, the average composition of the several kinds of families formed from the various matings can be predicted.

Only those who have themselves witnessed the fixed operations of these simple rules can feel their full significance. We come to look behind the simulacrum of the individual body and we endeavour to disintegrate its features into the genetic elements by whose union the body was formed. Set out in cold general phrases such discoveries may seem remote from ordinary life. Become familiar with them and you will find your outlook on the world has changed. Watch the effects of segregation among the living things with which you have to do—plants, fowls, dogs, horses, that mixed concourse of humanity we call the English race, your friends' children, your own children, yourself—and however firmly imagination be restrained to the bounds of the known and the proved, you will feel something of that range of insight into nature which Mendelism has begun to give. The question is often asked whether there are not also in operation systems of descent quite other than those contemplated

by the Mendelian rules. I myself have expected such discoveries, but hitherto none have been plainly demonstrated. It is true we are often puzzled by the failure of a parental type to reappear in its completeness after a cross—the merino sheep or the fantail pigeon, for example. These exceptions may still be plausibly ascribed to the interference of a multitude of factors, a suggestion not easy to disprove; though it seems to me equally likely that segregation has been in reality imperfect. Of the descent of quantitative characters we still know practically nothing. These and hosts of difficult cases remain almost untouched. In particular the discovery of E. Baur, and the evidence of Winkler in regard to his "graft hybrids," both showing that the sub-epidermal layer of a plant—the layer from which the germ-cells are derived—may bear exclusively the characters of a part only of the soma, give hints of curious complications, and suggest that in plants at least the interrelations between soma and gamete may be far less simple than we have supposed. Nevertheless, speaking generally, we see nothing to indicate that qualitative characters descend, whether in plants or animals, according to systems which are incapable of factorial representation.

The body of evidence accumulated by this method of analysis is now very large, and is still growing fast by the labours of many workers. Progress is also beginning along many novel and curious lines. The details are too technical for inclusion here. Suffice it to say that not only have we proof that segregation affects a vast range of characteristics, but in the course of our analysis phenomena of most unexpected kinds have been encountered. Some of these things twenty years ago must have seemed inconceivable. For example, the two sets of sex organs, male and female, of the same plant may not be carrying the same characteristics; in some animals characteristics, quite independent of sex, may be distributed solely or predominantly to one sex; in certain species the male may be breeding true to its own type, while the female is permanently mongrel, throwing off eggs of a distinct variety in addition to those of its own type; characteristics, essentially independent, may be associated in special combinations which are largely retained in the next generation, so that among the grand-children there is numerical preponderance of those combinations which existed in the grandparents—a discovery which introduces us to a new phenomenon of polarity in the organism.

We are accustomed to the fact that the fertilised egg has a polarity, a front and hind end for example; but we have now to recognise that it, or the primitive germinal cells formed from it, may have another polarity in the gropings of the parental elements. I am entirely sceptical as to the occurrence of segregation solely in the maturation of the germ-cells,† preferring at present to regard it as a special case of that patch-work condition we see in so many plants. These mosaics may break up, emitting bud-sports at various cell-divisions, and I

† The fact that in certain plants the male and female organs respectively carry distinct factors may be quoted as almost decisively negating the suggestion that segregation is confined to the reduction division.

suspect that the great regularity seen in the F_2 ratios of the cereals, for example, is a consequence of very late segregation, whereas the excessive irregularity found in other cases may be taken to indicate that segregation can happen at earlier stages of differentiation.

The paradoxical descent of colour-blindness and other sex-limited conditions—formerly regarded as an inscrutable caprice of nature—has been represented with approximate correctness, and we already know something as to the way, or, perhaps, I should say ways, in which the determination of sex is accomplished in some of the forms of life—though, I hasten to add, we have no inkling as to any method by which that determination may be influenced or directed. It is obvious that such discoveries have bearings on most of the problems, whether theoretical or practical, in which animals and plants are concerned. Permanence or change of type, perfection of type, purity or mixture of race, 'facial development,' the succession of forms, from being vague phrases expressing matters of degree, are now seen to be capable of acquiring physiological meanings, already to some extent assigned with precision. For the naturalist—and it is to him that I am especially addressing myself to-day—these things are chiefly significant as relating to the history of organic beings—the theory of evolution, to use our modern name. They have, as I shall endeavour to show in my second address to be given in Sydney, an immediate reference to the conduct of human society.

I suppose that everyone is familiar in outline with the theory of the Origin of Species which Darwin promulgated. Through the last fifty years this theme of the Natural Selection of favoured races has been developed and expounded in writings innumerable. Favoured races certainly can replace others. The argument is sound, but we are doubtful of its value. For us that debate stands adjourned. We go to Darwin for his incomparable collection of facts. We would fain emulate his scholarship, his width and his power of exposition, but to us he speaks no more with philosophical authority. We read his scheme of Evolution as we would those of Lucretius or of Lamarck, delighting in their simplicity and their courage. The practical and experimental study of Variation and Heredity has not merely opened a new field; it has given a new point of view and new standards of criticism. Naturalists may still be found expounding teleological systems[¶] which would have delighted Dr. Pangloss himself, but at the present time few are misled. The student of genetics knows that the time for the development of theory is not yet.

[¶] I take the following from the Abstract of a recent Croonian Lecture "On the Origin of Mammals," delivered to the Royal Society: "In the Upper Triassic times the larger Cynodonts preyed upon the large Anomodont, Kannemeyeria, and carried on their existence so long as these Anomodonts survived, but died out with them about the end of the Trias or in Rhaetic times. The small Cynodonts, having neither small Anomodonts nor small Cotylosaurs to feed on, were forced to hunt the very active long-limbed Thecodonts. The greatly increased activity brought about that series of changes which formed the mammals—the flexible skin with hair, the four-chambered heart and warm blood, the loose jaw with teeth for mastication, an increased development of tactile sensation and a great increase of cerebrum. Not improbably the attacks of the newly-evolved Cynodont or mammalian type brought about a corresponding evolution in the Pseudosuchia. Thecodonts which ultimately resulted in the formation of Dinosaurs and Birds." Broom, R., Proc. Roy. Soc. B., 87, p. 88.

He would rather stick to the seed-pan and the incubator.

In face of what we know of the distribution of variability in nature the scope claimed for Natural Selection in determining the fixity of Species must be greatly reduced. The doctrine of the survival of the fittest is undeniable so long as it is applied to the organism as a whole, but to attempt by this principle to find value in all definiteness of parts and functions, and in the name of Science to see fitness everywhere is mere eighteenth-century optimism. Yet it was in application to the parts, to the details of specific difference, to the spots on the peacock's tail, to the colouring of an orchid flower, and hosts of such examples, that the potency of Natural Selection was urged with the strongest emphasis. Shorn of these pretensions, the doctrine of the survival of favoured races is a truism, helping scarcely at all to account for the diversity of species. Tolerance plays almost as considerable a part. By these admissions almost the last shred of that teleological fustian with which Victorian philosophy loved to clothe the theory of Evolution is destroyed. Those who would proclaim that whatever is is right will be wise henceforth to base this faith frankly on the impregnable rock of superstition and to abstain from direct appeals to natural fact.

My predecessor said last year that in physics the age is one of rapid progress and profound scepticism. In at least as high a degree this is true of biology, and as a chief characteristic of modern evolutionary thought we must confess also to a deep but irksome humility in presence of great vital problems. Every theory of evolution must be such as to accord with the facts of physics and chemistry, a primary necessity to which our predecessors paid small heed. For them the unknown was a rich mine of possibilities on which they could freely draw. For us it is rather an impenetrable mountain out of which the truth can be chipped in rare and isolated fragments. Of the physics and chemistry of life we know next to nothing. Somehow the characters of living things are bound up in properties of colloids, and are largely determined by the chemical powers of enzymes, but the study of these classes of matter has only just begun. Living things are found by a simple experiment to have powers undreamt of, and who knows what may be behind?

Naturally we turn aside from generalities. It is no time to discuss the origin of the Mollusca or of Dicotyledons, while we are not even sure how it came to pass that *Primula obconica* has in twenty-five years produced its abundant new forms almost under our eyes. Knowledge of heredity has so reacted on our conceptions of variation that very competent men are even denying that variation in the old sense is a genuine occurrence at all. Variation is postulated as the basis of all evolutionary change. Do we then as a matter of fact find in the world about us variations occurring of such a kind as to warrant faith in a contemporary progressive Evolution? Till lately most of us would have said "yes" without misgiving. We should have pointed, as Darwin did, to the immense range of diversity seen in many wild species, so commonly that the

difficulty is to define the types themselves. Still more conclusive seemed the profusion of forms in the various domesticated animals and plants, most of them incapable of existing even for a generation in the wild state, and therefore fixed unquestionably by human selection. These, at least, for certain, are new forms, often distinct enough to pass for species, which have arisen by variation. But when analysis is applied to this mass of variation the matter wears a different aspect. Closely examined, what is the "variability" of wild species? What is the natural fact which is denoted by the statement that a given species exhibits much variation? Generally one of two things: either that the individuals collected in one locality differ among themselves; or perhaps more often that samples from separate localities differ from each other. As direct evidence of variation it is clearly to the first of these phenomena that we must have recourse—the heterogeneity of a population breeding together in one area. This heterogeneity may be in any degree, ranging from slight differences that systematists would disregard, to a complex variability such as we find in some moths, where there is an abundance of varieties so distinct that many would be classified as specific forms but for the fact that all are freely breeding together. Naturalists formerly supposed that any of these varieties might be bred from any of the others. Just as the reader of novels is prepared to find that any kind of parents might have any kind of children in the course of the story, so was the evolutionist ready to believe that any pair of moths might produce any of the varieties included in the species. Genetic analysis has disposed of all these mistakes. We have no longer the smallest doubt that in all these examples the varieties stand in a regular descending order, and that they are simply terms in a series of combinations of factors separately transmitted, of which each may be present or absent.

The appearance of contemporary variability proves to be an illusion. Variation from step to step in the series must occur either by the addition or by the loss of a factor. Now, of the origin of new forms by loss there seems to me to be fairly clear evidence, but of the contemporary acquisition of any new factor I see no satisfactory proof, though I admit there are rare examples which may be so interpreted. We are left with a picture of variation utterly different from that which we saw at first. Variation now stands out as a definite physiological event. We have done with the notion that Darwin came latterly to favour, that large differences can arise by accumulation of small differences. Such small differences are often mere ephemeral effects of conditions of life, and as such are not transmissible; but even small differences, when truly genetic, are factorial like the larger ones, and there is not the slightest reason for supposing that they are capable of summation. As to the origin or source of these positive separable factors, we are without any indication or surmise. By their effects we know them to be definite, as definite, say, as the organisms which produce diseases; but how they arise and how they come to take part in the com-

position of the living creature so that when present they are treated in cell-division as constituents of the germs, we cannot conjecture.

It was a commonplace evolutionary theory that at least the domestic animals have been developed from a few wild types. Their origin was supposed to present no difficulty. The various races of fowl, for instance, all came from *Gallus bankiva*, the Indian jungle-fowl. So we are taught; but try to reconstruct the steps in their evolution and you realise your hopeless ignorance. To be sure there are breeds, such as black-red game and brown leghorns, which have the colours of the jungle-fowl, though they differ in shape and other respects. As we know so little as yet of the genetics of shape, let us assume that those transitions could be got over. Suppose, further, as is probable, that the absence of the maternal instinct in the leghorn is due to loss of one factor which the jungle-fowl possesses. So far we are on fairly safe ground. But how about white leghorns? Their origin may seem easy to imagine, since white varieties have often arisen in well-authenticated cases. But the white of white leghorns is not, as white in nature often is, due to the loss of the colour-elements, but to the action of something which inhibits their expression. Whence did that something come? The same question may be asked respecting the heavy breeds, such as Malays and Indian game. Each of these is a separate introduction from the East. To suppose that these, with their peculiar combs and close feathering, could have been developed from pre-existing European breeds is very difficult. On the other hand, there is no wild species now living any more like them. We may, of course, postulate that there was once such a species, now lost. That is quite conceivable, though the suggestion is purely speculative. I might thus go through the list of domesticated animals and plants of ancient origin and again and again we should be driven to this suggestion, that many of their destructive characters must have been derived from some wild original now lost. Indeed, to this unsatisfying conclusion almost every careful writer on such subjects is now reduced. If we turn to modern evidence, the case looks even worse. The new breeds of domestic animals made in recent times are the carefully selected products of recombination of pre-existing breeds. Most of the new varieties of cultivated plants are the outcome of deliberate crossing. There is generally no doubt in the matter. We have pretty full histories of these crosses in gladiolus, orchids, cineraria, begonia, calceolaria, pelargonium, etc. A very few certainly arise from a single origin. The sweet pea is the clearest case, and there are others which I should name with hesitation. The cyclamen is one of them, but we know that efforts to cross cyclamens were made early in the cultural history of the plant, and they may very well have been successful. Several plants for which single origins are alleged, such as the Chinese primrose, the dahlia, and tobacco, came to us in an already domesticated state, and their origins remain altogether mysterious. Formerly single origins were generally presumed, but at the

present time numbers of the chief products of domestication, dogs, horses, cattle, sheep, poultry, wheat, oats, rice, plums, cherries, have in turn been accepted as "polyphyletic" or, in other words, derived from several distinct forms. The reason that has led to these judgments is that the distinctions between the chief varieties can be traced as far back as the evidence reaches, and that these distinctions are so great, so far transcending anything that we actually know variation capable of effecting, that it seems pleasanter to postpone the difficulty, relegating their critical differentiation to some misty antiquity into which we shall not be asked to penetrate. For it need scarcely be said that this is mere procrastination. If the origin of a form under domestication is hard to imagine, it becomes no easier to conceive of such enormous deviations from type coming to pass in the wild state. Examine any two thoroughly distinct species which meet each other in their distribution, as, for instance, *lychnis diurna* and *vespertina* do. In areas of overlap are many intermediate forms. These used to be taken to be transitional steps, and the specific distinctness of *vespertina* and *diurna* was on that account questioned. Once it is known that these supposed intergrades are merely mongrels between the two species, the transition from one to the other is practically beyond our powers of imagination to conceive. If both these can survive, why has their common parent perished? Why when they cross do they not reconstruct it instead of producing partially sterile hybrids? I take this example to show how entirely the facts were formerly misinterpreted.

When once the idea of a true-breeding—or, as we say, homozygous—type is grasped, the problem of variation becomes an insistent oppression. What can make such a type vary? We know, of course, one way by which novelty can be introduced—by crossing. Cross two well-marked varieties—for instance, of Chinese *primula*—each breeding true, and in the second generation by mere recombination of the various factors which the two parental types severally introduced, there will be a profusion of forms, utterly unlike each other, distinct also from the original parents. Many of these can be bred true, and if found wild would certainly be described as good species. Confronted by the difficulty I have put before you, and contemplating such amazing polymorphism in the second generation from a cross in *antirrhinum*, Lotsy has lately with great courage suggested to us that all variation may be due to such crossing. I do not disguise my sympathy with this effort. After the blind complacency of conventional evolutionists, it is refreshing to meet so frank an acknowledgment of the hardness of the problem. Lotsy's utterance will at least do something to expose the artificiality of systematic zoology and botany. Whatever might or might not be revealed by experimental breeding, it is certain that without such tests we are merely guessing when we profess to distinguish specific limits and to declare that this is a species and that a variety. The only definable unit in classification is the homozygous form which breeds true. When we presume to say that such and such differences are trivial

and such others valid, we are commonly embarking on a course for which there is no physiological warrant. Who could have foreseen that the apple and the pear—so like each other that their botanical differences are evasive—could not be crossed together, though species of *antirrhinum* so totally unlike each other as *majus* and *molle* can be hybridized, as Baur has shown, without a sign of impaired fertility? Jordan was perfectly right. The true-breeding forms which he distinguished in such multitudes are real entities, though the great systematists, dispensing with such laborious analysis, have pooled them into arbitrary Linnean species, for the convenience of collectors and for the simplification of catalogues. Such pragmatistical considerations may mean much in the museum, but with them the student of the physiology of variation has nothing to do. These "little species," finely cut, true-breeding, and innumerable mongrels, between them, are what he finds when he examines any so-called variable type. On analysis, the semblance of variability disappears, and the illusion is shown to be due to segregation and recombination of series of factors on pre-determined lines. As soon as the "little species" are separated out they are found to be fixed. In face of such a result we may well ask with Lotsy, is there such a thing as spontaneous variation anywhere? His answer is that there is not.

Abandoning the attempt to show that positive factors can be added to the original stock, we have further to confess that we cannot often actually prove variation by loss of factor to be a real phenomenon. Lotsy doubts whether even this phenomenon occurs. The sole source of variation, in his view, is crossing. But here I think he is on unsafe ground. When a well-established variety like "Crimson King" *primula*, bred by Messrs. Sutton in thousands of individuals, gives off, as it did a few years since, a salmon-coloured variety, "Coral King," we might claim this as a genuine example of variation by loss. The new variety is a simple recessive. It differs from "Crimson King" only in one respect, the loss of a single colour-factor, and, of course, bred true from its origin. To account for the appearance of such a new form by any process of crossing is exceedingly difficult. From the nature of the case there can have been no cross since "Crimson King" was established, and hence the salmon must have been concealed as a recessive from the first origin of that variety, even when it was represented by very few individuals, probably only by a single one. Surely, if any of these had been heterozygous for salmon this recessive could hardly have failed to appear during the process of self-fertilisation by which the stock would be multiplied, even though that selfing may not have been strictly carried out. Examples like this seem to me practically conclusive. They can be challenged, but not, I think, successfully. Then again, in regard to those variations in number and division of parts which we call meristic, the reference of these to original cross-breeding is surely barred by the circumstances in which they often occur. There

§ The numerous and most interesting "mutations" recorded by Professor T. H. Morgan and his colleagues in the fly, *Drosophila*, may also be cited as unexceptionable cases.

remain also the rare examples mentioned already in which a single wild origin may with much confidence be assumed. In spite of repeated trials, no one has yet succeeded in crossing the sweet pea with any other leguminous species. We know that early in its cultivated history it produced at least two marked varieties which I can only conceive of as spontaneously arising, though, no doubt, the profusion of forms we now have was made by the crossing of those original varieties. I mention the sweet pea thus prominently for another reason, that it introduces us to another though subsidiary form of variation, which may be described as a fractionation of factors. Some of my Mendelian colleagues have spoken of genetic factors as permanent and indestructible. Relative permanence in a sense they have, for they commonly come out unchanged after segregation. But I am satisfied that they may occasionally undergo a quantitative disintegration, with the consequence that varieties are produced intermediate between the integral varieties from which they were derived. These disintegrated conditions I have spoken of as subtraction—or reduction—stages. For example, the picotee sweet pea, with its purple edges, can surely be nothing but a condition produced by the factor which ordinarily makes the fully purple flower, quantitatively diminished. The pied animal, such as the Dutch rabbit, must similarly be regarded as the result of partial defect of the chromogen from which the pigment is formed, or conceivably of the factor which effects its oxidation. On such lines I think we may with great confidence interpret all those intergrading forms which breed true and are not produced by factorial interference.

It is to be inferred that these fractional degradations are the consequence of irregularities in segregation. We constantly see irregularities in the ordinary meristic processes, and in the distribution of somatic differentiation. We are familiar with half segments, with imperfect twinning, with leaves partially petaloid, with petals partially sepaloid. All these are evidences of departures from the normal regularity in the rhythms of repetition, or in those waves of differentiation by which the qualities are sorted out among the parts of the body. Similarly, when in segregation the qualities are sorted out among the germ-cells in certain critical cell-divisions, we cannot expect these differentiating divisions to be exempt from the imperfections and irregularities which are found in all the grosser divisions that we can observe. If I am right, we shall find evidence of these irregularities in the association of unconformable numbers, with the appearance of novelties which I have called fractional. In passing, let us note how the history of the sweet pea belies those ideas of a continuous evolution with which we had formerly to contend. The big varieties came first. The little ones have arisen later, as I suggest by fractionation. Presented with a collection of modern sweet peas, how prettily would the devotees of continuity have arranged them in a graduated series, showing how every intergrade could be found, passing from the full

colour of the wild Sicilian species in one direction to white, in the other to the deep purple of "Black Prince," though happily we know these two to be among the earliest to have appeared.

Having in view these and other considerations which might be developed, I feel no reasonable doubt that, though we may have to forego a claim to variations by addition of factors, yet variation both by loss of factors and by fractionation of factors is a genuine phenomenon of contemporary nature. If then we have to dispense, as seems likely, with any addition from without we must begin seriously to consider whether the course of Evolution can at all reasonably be represented as an unpacking of an original complex which contained within itself the whole range of diversity which living things present. I do not suggest that we should come to a judgment as to what is or is not probable in these respects. As I have said already, this is no time for devising theories of Evolution, and I propound none. But as we have got to recognise that there has been an Evolution, that somehow or other the forms of life have arisen from fewer forms, we may as well see whether we are limited to the old view that evolutionary progress is from the simple to the complex, and whether after all it is conceivable that the process was the other way about. When the facts of genetic discovery become familiarly known to biologists, and cease to be the preoccupation of a few, as they still are, many and long discussions must inevitably arise on the question, and I offer these remarks to prepare the ground. I ask you simply to open your minds to this possibility. It involves a certain effort. We have to reverse our habitual modes of thought. At first it may seem rank absurdity to suppose that the primordial form or forms of protoplasm could have contained complexity enough to produce the divers types of life. But is it easier to imagine that these powers could have been conveyed by extrinsic additions? Of what nature could these additions be? Additions of material cannot surely be in question. We are told that salts of iron in the soil may turn a pink hydrangea blue. The iron cannot be passed on to the next generation. How can the iron multiply itself? The power to assimilate the iron is all that can be transmitted. A disease-producing organism like the pebrine of silkworms can in a very few cases be passed on through the germ-cells. Such an organism can multiply and can produce its characteristic effects in the next generation. But it does not become part of the invaded host, and we cannot conceive it taking part in the geometrically ordered processes of segregation. These illustrations may seem too gross; but what refinement will meet the requirements of the problem, that the thing introduced must be, as the living organism itself is, capable of multiplication and of subordinating itself in a definite system of segregation? That which is conferred in variation must rather itself be a change, not of material, but of arrangement, or of motion. The invocation of additions extrinsic to the organism does not seriously help us to imagine how the

power to change can be conferred, and if it proves that hope in that direction must be abandoned, I think we lose very little. By the re-arrangement of a very moderate number of things we soon reach a number of possibilities practically infinite.

That primordial life may have been of small dimensions need not disturb us. Quantity is of no account in these considerations. Shakespeare once existed as a speck of protoplasm not so big as a small pin's head. To this nothing was added that would not equally well have served to build up a baboon or a rat. Let us consider how far we can get by the process of removal of what we call "epistatic" factors, in other words those that control, mask, or suppress underlying powers and faculties. I have spoken of the vast range of colours exhibited by modern sweet peas. There is no question that these have been derived from the one wild bi-colour form by a process of successive removals. When the vast range of form, size, and flavour to be found among the cultivated apples is considered it seems difficult to suppose that all this variety is hidden in the wild crab-apple. I cannot positively assert that this is so, but I think all familiar with Mendelian analysis would agree with me that it is probable, and that the wild crab contains presumably inhibiting elements which the cultivated kinds have lost. The legend that the seedlings of cultivated apples become crabs is often repeated. After many inquiries among the raisers of apple seedlings I have never found an authentic case—once only even an alleged case, and this on inquiry proved to be unfounded. I have confidence that the artistic gifts of mankind will prove to be due not to something added to the make-up of an ordinary man, but to the absence of factors which in the normal person inhibit the development of these gifts. They are almost beyond doubt to be looked upon as releases of powers normally suppressed. The instrument is there, but it is "stopped down." The scents of flowers or fruits, the finely repeated divisions that give its quality to the wool of the merino, or in an analogous case the multiplicity of quills to the tail of the fantail pigeon, are in all probability other examples of such releases. You may ask what guides us in the discrimination of the positive factors, and how we can satisfy ourselves that the appearance of a quality is due to loss. It must be conceded that in these determinations we have as yet recourse only to the effects of dominance. When the tall pea is crossed with the dwarf, since the offspring is tall we say that the tall parent passed a factor into the cross-bred which makes it tall. The pure tall parent had two doses of this factor; the dwarf had none; and since the cross-bred is tall we say that one dose of the dominant tallness is enough to give the full height. The reasoning seems unanswerable. But the commoner result of crossing is the production of a form intermediate between the two pure parental types. In such examples we see clearly enough that the full parental characteristics can only appear when they are homozygous—formed from similar germ-cells, and that one dose is sufficient to

produce either effect fully. When this is so we can never be sure which side is positive and which negative. Since, then, when dominance is incomplete we find ourselves in this difficulty, we perceive that the amount of the effect is our only criterion in distinguishing the positive from the negative, and when we return even to the example of the tall and dwarf peas the matter is not so certain as it seemed. Professor Cockerell lately found among thousands of yellow sunflowers one which was partly red. By breeding he raised from this a form wholly red. Evidently the yellow and the wholly red are the pure forms, and the partially red is the heterozygote. We may then say that yellow is YY with two doses of a positive factor which inhibits the development of pigment; the red is yy, with no dose of the inhibitor; and the partially red are Yy, with only one dose of it. But we might be tempted to think the red was a positive characteristic, and invert the expressions, representing the red as RR, the partly red as Rr, and the yellow as rr. According as we adopt the one or the other system of expression we shall interpret the evolutionary change as one of loss or as one of addition. May we not interpret the other apparent new dominants in the same way? The white dominated in the fowl or in the Chinese primula can inhibit colour. But may it not be that the original coloured fowl or primula had two doses of a factor which inhibited this inhibitor? The pepper moth, *amphidasys betularia*, produced in England about 1840 a black variety, then a novelty, now common in certain areas, which behaves as a full dominant. The pure blacks are no blacker than the cross-bred. Though at first sight it seems that the black must have been something added, we can without absurdity suggest that the normal is the term in which two doses of inhibitor are present, and that in the absence of one of them the black appears.

In spite of seeming perversity, therefore, we have to admit that there is no evolutionary change which in the present state of our knowledge we can positively declare to be not due to loss. When this has been conceded it is natural to ask whether the removal of inhibiting factors may not be invoked in alleviation of the necessity which has driven students of the domestic breeds to refer their diversities to multiple origins. Something, no doubt, is to be hoped for in that direction, but not until much better and more extensive knowledge of what variation by loss may effect in the living body can we have any real assurance that this difficulty has been obviated. We should be greatly helped by some indication as to whether the origin of life has been single or multiple. Modern opinion is, perhaps, inclining to the multiple theory, but we have no real evidence. Indeed, the problem still stands outside the range of scientific investigation, and when we hear the spontaneous formation of formaldehyde mentioned as a possible first step in the origin of life, we think of Harry Lauder in the character of a Glasgow schoolboy pulling out his treasures from his pocket—"That's a wassher—for makkin' motor cars!"

As the evidence stands at present all that can be safely added in amplification of the evolutionary creed may be summed up in the statement that variation occurs as a definite event often producing a sensibly discontinuous result; that the succession of varieties comes to pass by the elevation and establishment of sporadic groups of individuals owing their origin to such isolated events and that the change which we see as a nascent variation is often, perhaps always, one of loss. Modern research lends not the smallest encouragement or sanction to the view that gradual evolution occurs by the transformation of masses of individuals, though that fancy has fixed itself on popular imagination. The isolated events to which variation is due are evidently changes in the germinal tissues, probably in the manner in which they divide. It is likely that the occurrence of these variations is wholly irregular, and as to their causation we are absolutely without surmise or even plausible speculation. Distinct types once arisen, no doubt a profusion of the forms called species have been derived from them by simple crossing and subsequent recombination. New species may be now in course of creation by this means, but the limits of the process are obviously narrow. On the other hand, we see no changes in progress around us in the contemporary world which we can imagine likely to culminate in the evolution of forms distinct in the larger sense. By intercrossing dogs, jackals, and wolves new forms of these types can be made, some of which may be species, but I see no reason to think that from such material a fox could be bred in indefinite time, or that dogs could be bred from foxes.

Whether science will hereafter discover that certain groups can by peculiarities in their genetic physiology be declared to have a prerogative quality justifying their recognition as species in the old sense, and that the differences of others are of such a subordinate degree that they may in contrast be termed varieties, further genetic research alone can show. I myself anticipate that such a discovery will be made, but I cannot defend the opinion with positive conviction.

Somewhat reluctantly, and rather from a sense of duty, I have devoted most of this address to the evolutionary aspects of genetic research. We cannot keep these things out of our heads, though sometimes we wish we could. The outcome, as you will have seen, is negative, destroying much that till lately passed for gospel. Destruction may be useful, but it is a low kind of work. We are just about where Boyle was in the seventeenth century. We can dispose of alchemy, but we cannot make more than a quasi-chemistry. We are awaiting our Priestley and our Mendeleeff. In truth it is not these wilder aspects of genetics that are at present our chief concern. They will come in their time. The great advances of science are made like those of evolution, not by imperceptible mass-improvement, but by the sporadic birth of penetrative genius. The journeymen follow after him, widening and clearing up, as we are doing along the track that Mendel found.

Reports of Cases.

A CASE OF MULTIPLE MALIGNANT PUSTULE.

By C. Duguid, M.A., M.B., Ch.B. (Glasgow),
Maylands, Adelaide.

W.R., male, farm labourer, aged 26, called on me on the evening of 12th December, 1913, complaining of "boils" on the arm. He stated that they were not getting any better. The appearance of the pustules at once suggested anthrax, and, on enquiry as to shearing, the following history was elicited: Prior to 11th November, 1913, the patient had been employed in sheep-shearing, and from 18th November to 30th November he was shearing lambs. Half-way through this period he developed "pimples" on the left arm. These he took to be "yolk-boils"—a form of boil which is fairly common in shearers on the aspect of the arm which rests against the sheep during the process of shearing, viz., the anterior surface of the left arm. The day before he called on me the "boils" itched considerably, and nothing seemed to relieve them. He further noticed that his arm was getting hard. He continued to work, however, and had felt no bad effects whatsoever.

The patient was a tall, strongly-built man. He did not look ill, and he mentioned that he felt quite well. The temperature, however, was 102.6°, and he had a fainting turn while in my surgery, but, as he had ridden over twenty miles on an ordinary bicycle over a bad road and in a blazing sun, not much importance was attributed to this occurrence.

On the dorsum of the left hand there were three lesions—one about the middle of the dorsum and two over the metacarpal bone of the thumb. On the left forearm, anteriorly, there were thirteen, on the dorsum one, and on the lateral ulnar surface two. There were two on the dorsum of the right hand. Those on the anterior aspect of left forearm were the most developed, and near the wrist they presented the following characteristics: There was a central core of necrosis—round, raised, of a dirty white colour, and the size of a small pea. This was surrounded by a ring of vesicles, each about the size of a large grain of wheat. These were filled with a clear fluid. Between the central core and the vesicles there was a circular trench—not deep, but quite distinct. Surrounding the whole was a dark brown infiltrated area, gradually shelving into the normal tissue. The whole arm was swollen and firm, though not to any marked extent. Near the elbow there were several small red papules, about the size of a large pin's head, and the patient stated that this was how they all began. These developed later. The glands in axilla were enlarged, but were only slightly tender to the touch.

I made a film preparation from the fluid of one of the vesicles, staining it with watery methylene blue. Under the high power, typical rod-shaped bacilli were readily recognized. No abnormal signs were detected in the lungs. There was neither cough nor sputum. The spleen was not enlarged, and there was no diarrhoea.

The patient was removed to Warracknabeal Isolation Hospital and one of the "pustules" cut out and sent to Dr. Bull, of the Melbourne University, who cultivated the bacilli.

Through the courtesy of Dr. Donald, I was enabled to see the patient from time to time in hospital.

The case was treated by injecting carbolic acid into and around the sores. Selazo's serum was not used.

The temperature fell on the morning after admission, and after a few days remained subnormal for weeks. The swelling of the axillary glands gradually subsided, and the pustules quickly shrank under the treatment mentioned, but the wound caused by the excision of specimen refused to heal for many weeks. At the end of three months the man was back at work.

Malignant pustule occurring singly, as it usually does, is not very common, but, occurring with such a multiplicity of lesions, as in this case, it is, I think, distinctly rare. It struck me as remarkable, too, that, with so many local foci, the constitutional effect should have been so slight. Every effort was made by the Health Department and by the Government Stock Department to trace the source of infection, but without success. The case proved

to be sporadic, and was the first of its kind in that part of Victoria.

A CARBUNCLE TREATED BY ZINC IONIZATION.

By **Chas. E. Dennis, M.D.,**
Melbourne.

The following case illustrates the effect of ionization of a large carbuncle. The very rapid recovery which followed this treatment, without any other treatment except fomentation, must be accepted as evidence of its efficacy.

W.H.C., a middle-aged, rather sickly looking man, was sent to me by Dr. Hardy. The patient had a large carbuncle, four inches in diameter, over the right mastoid region. It began as a swelling about six weeks previously, according to the patient's statement, and had only been discharging for the last four days. There was a large, ragged hole in the centre of the swelling, with several smaller ones round it. The cavity was deep and full of adherent stringy necrotic tissue and curdy pus. Below, on the side of the neck, was a large crop of boils, caused by the discharge. The patient's urine was free from sugar, but, owing to the size of the carbuncle, and its position over the lateral sinus, Dr. Hardy was averse to excising or scraping it. As I had recently had very satisfactory results from the ionization in septic wounds, etc., I suggested this treatment as the simplest and quickest, and it proved to be more rapid and satisfactory than I had anticipated. The first day the part was bathed in three per cent. warm zinc sulphate solution. A pad moistened with this solution was applied, and a current of fifteen milleampères allowed to act for twenty minutes without discomfort. Next day the carbuncle looked less angry and cleaner. Strips of gauze soaked in the zinc sulphate solution were then packed into the cavity, and a pad applied and a current of slightly greater amperage used, without discomfort, for half an hour. The patient was directed to apply carbolic fomentations (1 in 50) twice a day, and return in three days. By that time, i.e., four days after my first seeing him, all redness had disappeared, the cavity was quite clean, all sloughs had separated and cleared off, and the whole had a clean, healthy appearance. The area of the neck containing the multiple pustules was not affected, as this was not included in the ionic treatment. These pustules were subsequently given a dose of ionization, and in a week's time the condition was healed except for a small discharging sinus from which a little serous fluid escaped. There was a corresponding improvement in the patient's health. His condition was so satisfactory that it was not considered necessary to treat him any further.

Lewis Jones mentions in his treatise on Medical Electricity (sixth edition, p. 505) the remarkable efficiency of zinc ions in carbuncle, as reported by Leduc, and I have found the same treatment of great value in small septic wounds, indolent sores and ulcers, and pustular conditions.

Reviews.

Dr. Arnold Chaplin is undoubtedly an authority in regard to the life and death of the great Napoleon, and we are greatly indebted to him for his various contributions to the literature of this subject. His latest contribution takes the form of biographical notices of various medical men who were associated with Napoleon between the years 1815 and 1821. The first and most important of these notices deals with Thomas Shortt, whose position of principal medical officer in St. Helena from 1820 to September, 1821, was full of difficulties and human interest. Running right through the book is a desire to expose the arbitrary and officious conduct of Sir Hudson Lowe. It is doubtful whether these biographies can assist to any material extent in clearing up the mystery of Napoleon's illness and death. The evidence adduced by the author in these excellent sketches tends to show that Napoleon was a victim of climatic influences, which may be interpreted to mean Malta or undulating fever, but at the same time there is evidence that malignant growth was present in the stom-

ach. The reference made in the reports of Sir Hudson Lowe on the condition of the liver, including as it does the contradictory records of the various medical men present, serves to heighten rather diminish the confusion borne of autocratic interference of an official in authority with the work of medical men. The author does not state in so many words what his own opinion is, but it is fairly clear that he believes that Napoleon became a victim of his confinement in St. Helena, that his health broke down under the destructive influence of the bacillus mellitensis, and that death resulted from a cancerous growth super-imposed on the diseased organism. Such a view is certainly in keeping with the facts as we know them. It is now generally admitted that the celebrated "O'Meara-Astley Cooper" specimen in the College of Surgeons' Museum, which occupied the attention of Professor Keith last year, is not a genuine specimen, and has nothing to do with the body of Napoleon. But even in this regard certain doubts may be entertained. In the chapter dealing with George Henry Rutledge is reprinted a memorandum compiled by Rutledge, which aimed at the refutation of Antommarchi's version of what transpired at the post-mortem examination. Antommarchi, in his book, which was published four years after the death of Napoleon, stated that he detached the heart and stomach and put them in a silver vase; that he filled the vase containing the heart with alcohol, and closed it hermetically. On the other hand, Rutledge maintains that he filled the vase with spirits of wine himself, had it hermetically sealed with solder, and after depositing it in the coffin with the body, saw the coffin closed. It is therefore reasonable to assume that no portion of the intestinal tract, or indeed of any organ, was retained. Rutledge himself was very emphatic that the disease was cancer of the stomach. It must, however, be recognised that Rutledge was prepared to take the "official view" of the case, and further that his opinion on pathological matters is not likely to commend much respect at the present time. Of all the characters dealt with by Dr. Chaplin, James Roche Verling is the most interesting and picturesque. The details given of the persistent refusal on the part of Napoleon to admit Verling in the place of O'Meara as his medical adviser, and the history of the part he played in the sad drama of the lonely island are given in a most fascinating manner. In the preface the author points out that three biographies are omitted. In the case of John Stokoe the omission was made because M. Paul Frémeaux had already written an admirable account of his life.

The first volume of this valuable report has been reviewed in the columns of the "Australian Medical Gazette," 20th April, 1912. The second volume deals with a variety of subjects under the heading "General Science." The report of the chemical section, by Mr. Beam, includes details of a test for Hashish, notes on the Khartoum water supply, analysis of soils, and the results of a research on gums. E. S. Edie deals with experiments in gum production, and J. Thompson with the chemistry of the cortex of *Calotropis procera*, an asclepiadaceous plant known to be poisonous. The report on the entomological section, by H. H. King, deals with mosquitos, tapanid flies, ticks, and animals injurious to farms and gardens. A description of the finches and weaver-birds of the Soudan is by A. L. Butler. Descriptions of scorpions and allied annulated spiders are contributed by Prof. F. Werner, and notes on spotting snakes by H. Curtis and Sir T. R. Fraser are appended. A flagellate of the melon-bug is recorded by W. M. Aders, S. C. Dunn deals with ancient gold-mining in the Soudan, C. G. Seligmann with anthropology, Captain R. G. Anderson with various tribal customs, and W. H. McLean and S. E. Hunt with some municipal engineering problems in the tropics. This brief summary shows the scope of the volume and the names of the contributors suffice to indicate the high quality of the contents and its value as a scientific contribution.

Thomas Shortt (Principal Medical Officer in St. Helena) with biographies of some other medical men associated with the case of Napoleon from 1815-1821. By Arnold Chaplin, M.D., 1914; London, Stanley Paul and Co. Demy 8vo., pp. 10, 2 portraits. Price, 2s.

Fourth Report of the Wellcome Tropical Research Laboratories at the Gordon Memorial College, Khartoum. Volume B.—General Science. Andrew Halliburton, M.D., Director. Published for the Department of Education, Sudan Government, Khartoum. London: Baillière, Tindall and Cox. Sydney: Bruck and Thomson. 1911. Price, 1hs. net.

Medical Journal of Australia.

SATURDAY, AUGUST 22, 1914.

Heredity.

The President of the British Association, in his brilliant address, the first part of which we publish in this issue, and the second part of which we propose to reproduce next week, in dealing with the subject of heredity, has moulded his utterances in conformity with established precedent. The President of the British Association is expected to deal with his subject from a purely scientific point of view. He is supposed to present to his hearers facts and theories which are capable of analysis and which will stand microscopic inspection and severe criticism. The position of biological thought of the present day demands materialistic treatment of life problems, and will not tolerate mysticism or superstition. Two years ago, the world was delighted with the powerful speech delivered by Sir Edward Schafer; scientific men endorsed his views, even though they did not add materially to our knowledge of the nature and origin of life. Last year Sir Oliver Lodge offered the British Empire a thoughtful enunciation of problems which are not universally accepted as representing actual facts in nature. The treatment was not in accordance with the present tenets of biology, and, in consequence, the result of the philosophical survey of vital and extra-vital problems left the world but little the wiser.

It must be recognised that a presidential address is not the occasion for the elaboration of new or startling discoveries. Professor Bateson has not attempted to make it one. More than this, the first part does not even construct anything very definite out of the tangle of obscure theories and ill-understood facts. It is largely composed of the weeding out of useless, misleading ballast and the detection of what is worthy of credence. We learn from it that the teaching of variation in living things must be approached with a spirit of incredulity and almost suspicious criticism. Professor Bateson asks us to allow the debate on the Darwinian theory of the origin of species by natural selection to stand

adjourned at present. He suggests that Darwin can no longer be accepted as a philosophical authority, even though he admits his extraordinary power of collecting fact, of expounding problems and of treating his subject in a truly scientific manner. In this every biologist must agree. He goes farther, and, in analysing what has been accepted as fact by those who have dealt with the problems of variation, mutation and development, refuses to catalogue any data without first testing the truth of the suppositious fact. In this way we soon find that the stones on which we wish to build up our edifice become very few, and it is therefore wise to avoid piling a great weight on the slender foundation, lest the whole building fall about our ears. By a process of elimination, he reduces us to observations tested and retested from the point of view of a single initial fact. The habit of old of ascertaining whether a character, property, disease or tendency is hereditary by watching whether examples are found with marked frequency in one family cannot lead to reliable results. By selecting a definite character, and studying it according to the principles of Mendelism, we can arrive at positive facts, and if we examine each step cautiously and with extreme care, we can store up a sufficient number of these facts to justify us in drawing some conclusions. In this respect Professor Bateson stands in striking contrast with some of the more prominent members of the English, American and Continental schools of eugenists. They are satisfied to collect their data in mass, and to accept the bad with the good. Hence, many of the conclusions are erroneous. In the Galton Laboratory at University College, London, statistics are analysed with mathematical accuracy and great trouble, but the figures are often collected by untrained persons, whose capabilities of accurate observation are small. We are a little loth to confess that Professor Bateson is right in cutting down our supply of facts to such a small allowance, but whether we like it or not, we feel that he is right. The only way in which these problems can be followed out to their ultimate causes, and traced to the possible effects, is to sweep away all that cannot be proved. A few unrecognized facts must be sacrificed in the process of rejection.

In the second part of his address, Professor Bateson deals with some positive aspects of heredity. His keen sense of what are the limitations of eugenics safeguards his theories from becoming the ideal utterances of an enthusiast or of a visionary. Those who have listened to Professor Karl Pearson, whose charm of manner and speech, coupled with his lucidity of expression, are dangerously hypnotic in their influence, feel, nevertheless, that there is something not quite acceptable in all his deductions. An analysis of his reasoning will not always reveal the defect; but if a fresh set of observations, collected with personal control, and criticism be subjected to the same calculations, the defect becomes apparent. Professor Bateson states of the originator of the eugenic school—Galton—that if he had not been misled partly by the theory of pangenesis but more by his mathematical instincts and training, which prompted him to apply statistical treatment rather than qualitative analysis, he might have discovered the essential facts of Mendelism. The statistical treatment of facts cannot mislead, if the facts are real; and we presume that Professor Bateson would not quarrel with Galton or any of his followers because of their statistics, but only because they narrow down their perspective to statistics alone. All of us desire at times to embark in philosophic speculation, and the majority do not realize where the confusion of dreams and reality begins, and where the speculation leaves off. Professor Bateson helps us to recognize the demarcation; argument along the lines traversed by him will be found to be safe. His utterances lead us to speculate on the races of the world in the future, and on the part which man may play in the determination of the types which will arise. But before we can regard these speculations seriously we must increase our knowledge of biological facts, and take into consideration factors of which we have no conception as yet.

These annual addresses give us food for thought, worthy of prolonged digestion, and it would be well if we used that spirit of caution, which is so evident in the line of thought adopted by Professor Bateson, in our medical investigations and criticisms.

PSYCHIATRIC CLINICS.

We would direct the attention of our readers to a report of the special committee of the Medico-psychological Association of Great Britain and Ireland, which has just been issued, and with which we deal with on page 188 of this issue. **This report** is a continuation of an interim report which was published in July, 1913, and which was regarded as a severe indictment of the methods obtaining in regard to the treatment of the mentally affected, and of the training of those engaged in asylum service. In this country, the matter is not quite on the same plane. Certain principles have been recognized which have already lent a somewhat different colour to the treatment of the subject. In the first place, we do not speak of asylums, but of hospitals for mental diseases. In the next place, we have no need to recast the whole of an antiquated system of the care of the insane, surviving from a mediæval time. But, notwithstanding these and a few other differences between the conditions of Australia and those of England, the need for reconsideration and for the creation of fresh machinery is present.

In elaborating a scheme, it is necessary to consider what we have to aim at in regard to those who are mentally affected. The better understanding of the pathology of mental disease has revealed what a few years ago was undreamed of. We find that many of the forms are amenable to treatment, and that, provided that the curative measures be adopted at an early date, the prognosis of the majority of affections of the mind is scarcely less good than that of other internal diseases. With the continuation of pathological and clinical study, and especially if the opportunities of such study be improved, our knowledge of the nature and early symptoms of mental diseases will be materially increased, and with this there will be greater chances of treating them successfully. We learn from the reports of the medical superintendents of the mental hospitals that the number of persons discharged as cured in each year is increasing, and that the percentage of re-admissions is decreasing. This applies to a system which practically excludes the treatment of really early cases. Dr. Rows has pointed

out that there are real disadvantages associated with the certification of a mental case in the initial stages. The relatives are not willing to submit the patient to the process of certification and incarceration in an asylum. In the majority of cases, such certification is wholly unnecessary, and the fact often impedes recovery. Hence the first recommendation is the establishment of psychiatric clinics attached to universities, hospitals and medical schools. This recommendation applies with equal force to Australia.

In the next place, the equipment of the clinics should be in accordance with modern scientific requirements. We have to turn to Germany and to America to learn what a well-organized and properly-staffed psychiatric clinic can effect in the way of recoveries. The best results can only be attained if the number of medical officers and their special training are satisfactory. In Kræpelin's clinic, in Munich, we learn that there are 15 medical officers to 120 patients. It need not be supposed that these men are all concerned in the direct treatment of patients. There are the laboratories and investigation departments, the teaching and supervising departments and the like. The number of posts secures the possibility of advancement, and, in a well-organized psychiatric institute, there will be opportunity given to the young man to forge for himself a career, which will end in eminence and good social and financial position if he rises to the top of the tree. An essential in the scheme is that only really capable men should be engaged and continued in the service. In psychiatry, as in all other distinct special lines of study, the chances of distinction and success depend on unusual ability and assiduous application. A man who is neither industrious nor capable cannot hope to attain eminence. In Australia there should be no dearth of suitable young men to place in the positions of assistant medical officers to the prospective psychiatric clinics. The service must be rendered attractive from every point of view, and it must be so organized that the men once they have entered it will not want to leave the career. In the next place, the recommendation of the committee of inter-

change services between the asylum (mental hospitals), psychiatric clinics and university departments of psychiatry should be instituted both in the interest of the patients and of the medical officers.

The system of psychiatric clinics is based primarily on the reception of voluntary boarders and voluntary out-patients. By encouraging persons in the earliest stages of a mental attack to spend a short time in a clinic or to place themselves under the care of an expert physician in the out-patient department, the chances of rapid recovery are enhanced, the study of the various forms of mental disease will be furthered, and the younger medical officers will obtain a better insight into the signs and symptoms of the early stages of mental disease, so that they will soon contribute to the knowledge of the symptomatology, pathology, etiology and prognosis of the recognized types of disease. Classification will become easier and more scientific, and as our knowledge progresses on these lines, new forms of treatment will be devised, by means of which the frequency of cure will be increased.

Restraint has long since been regarded as a bad principle in the treatment of the insane. It may be used in the care of the patient, but then rather for the protection of others than for any benefit which the patient might derive. The time has gone by when the insane should be taken care of only; they should be treated. Much can be done and is done in the institutes which the States provide for the reception of certified persons, but more could be done under conditions of greater freedom and more adequate treatment. In order that the full advantage be derived from the psychiatric clinics, especially in regard to the generation of students who will become the next generation of practitioners, these clinics should be instituted in close connexion with universities, hospitals and teaching centres. The cost of establishment and upkeep would be better met in these situations, and the responsible authorities would soon find out that considerable economies can be effected in this way, as compared with the dead-weight of spending connected with the old-fashioned mental hospital.

Abstracts from Current Medical Literature.

THERAPEUTICS.

(73) The Use of Nitro-Glycerine.

Cornwall ("Journal of the American Medical Association," July, 1913) emphasises the following indications for the use of nitro-glycerine: (1) To relieve symptoms of localised arteriosclerosis or arterial spasm in vitally important regions of the body, and, when there is pain due to contracted or diseased arteries, in other regions; (2) to reduce general high blood-pressure in selected cases, if its continuance threatens accidents to the cardio-vascular apparatus; and (3) to clear up the diagnosis. The chief contra-indications are: (1) Low or relatively low blood-pressure; (2) advanced chronic nephritis, with very high blood-pressure and toxæmic conditions, producing high blood-pressure, as a rule; and (3) the presence of an idiosyncrasy in regard to its action. Nitro-glycerine should never be used for the primary purpose of a heart stimulant. Given under the tongue, it produces almost as prompt an effect as when injected under the skin. If given too long or in too large doses, it can produce injurious effects, which, however, usually pass away, at least apparently, when it is discontinued.

(74) Spinal Anaesthesia by Tropacocaine.

Morrison ("Birmingham Medical Review," August, 1913) sums up his views on the use of tropacocaine for spinal anaesthesia as follows: (1) It is a procedure of proved value and of simple technique. (2) Its province is sub-diaphragmatic operations. (3) There is no prohibitive age limit. (4) By blocking afferent paths, it prevents surgical shock. (5) It induces muscular relaxation, quiet breathing, and abdominal stillness, and thus conduces to rapidity and safety in abdominal surgery. (6) Used with discretion in conditions of extreme asthenia and instability of the medullary centres due to toxæmia, exhausting disease, traumatic shock, and old age, it is superior to ether and chloroform. (7) It promotes the patient's comfort and nutrition in the post-operative stage. (8) Its scope is amplified with the aid of scopolamine and morphine. (9) By lowering blood-pressure, it tends to faintness and respiratory depression. The patient should therefore be carefully watched after injection, and treated as required by means of diffusible stimulants, pituitrin, saline infusion, and artificial respiration. (10) In a small percentage of cases it is inadequate, and must be supplemented by general anaesthesia. (11) It increases the possibilities of surgery by facilitating the work of the surgeon in the absence of a competent anaesthetist or assistant.

(75) Diabetic Coma.

Joslin ("Boston Medical and Surgical Journal," September 4th, 1913) states that if a diabetic patient should show any signs of coma, the diet must be relaxed by the addition of oatmeal

and milk. The alkali should be increased to large quantities, even a teaspoonful every hour for two or three hours, and then every two hours. Not only should an extra quantity of alkali and carbohydrate be given, but sufficient liquid should be administered to enable the body to excrete the excess of acid. To prevent dilatation of the stomach, a portion of this liquid may be given per rectum in the form of salt solution. A patient with impending coma should pass no less than five quarts of urine daily, in order to rid the body of the excess of acid, inasmuch as the *b. oxybutyric* acid can only be removed from the body in dilute solution, and unless water is freely given, the patient draws upon the fluid in his tissues to an alarming extent. The treatment of actual coma is unsatisfactory. First of all we must furnish adequate fluid, and, secondly, the alkali must be pushed. Intravenous injection of the alkali gives the best immediate results, but, according to the best authorities, not more than thirty grammes should be administered in this way.

(76) The Treatment of Sciatica.

Dercum ("Therapeutic Gazette," April, 1914), in dealing with this subject, rightly emphasises the necessity of care in the diagnosis as being the most important point. Having decided on the diagnosis, the first thing is to control the pain, the second to adopt such measures as will bring about a cure. To control the pain it is necessary to put the limb at rest, and this is best done by placing it in a long splint, extending from the axilla to the heel. Short of this, a considerable degree of rest can be secured by the use of sand-bags, and, in ordinary simple cases, this will be found to be sufficient. As soon as adequate rest has been effected, full doses of salicylates should be employed, combined with sodium bromide, ten to twenty grains of the former and twenty to thirty of the latter every four hours, well diluted. Very soon the doses of these drugs may be diminished by one half, and rapidly discontinued altogether. It was the author's practice in former years to use the Pacquelin cautery over the course of the nerve, or to stretch the nerve either by forcible flexion of the extended leg on the abdomen or after exposure by operation. These procedures he has abandoned as unsatisfactory. He has also in former times used various other remedies, such as arsenic, turpentine, quinine, the iodides, antipyrin and phenacetine, but all alike with indifferent results. Dercum enumerates the various forms of local treatment which have been advocated, such as the injection of the nerve with alcohol and sodium chloride, and injection of the tissues round the nerve with perosmic acid, carbolic acid, methylene blue, etc., but all these he has not so far found necessary since he has used the salicylate treatment with absolute rest. He points out that it is sometimes difficult to get patients with sciatica to go to bed, and it is in this class of patient that the results of treatment

are unsatisfactory. He also points out the necessity of avoiding the danger of getting a contracture of the leg upon the thigh if the limb be kept fixed in one position too long, and the advantage of gentle massage as soon as practicable. Dercum very truly says that it is not the cases of true sciatica which give so much trouble, but rather the cases in which pain in the sciatic distribution is symptomatic of trouble elsewhere, and if a patient fails to respond to the treatment above outlined, then the diagnosis in all probability needs revision.

(77) Hexamethylenamin as in Antiseptic.

Frank Hinman ("Archiv. Int. Med.," June, 1914), after confirming the results of previous observers, which show that hexamethylenamin has no antiseptic power, and that its action depends on the formaldehyd liberated from it in acid solutions only, has examined many normal and pathological fluids of the body other than urine, in cases to which hexamethylenamin had previously been administered, with the purpose of deciding whether formaldehyd is present in sufficient quantity to be of antiseptic value. All fluids of the body, except gastric juice and urine, are normally neutral or alkaline, and the author failed to detect formaldehyd in any of these, though traces of hexamethylenamin were present in practically all. He then took standard broth, containing a known dilution of hexamethylenamin (1:1000) inoculated it with various micro organisms and tested it after certain periods for changes in reaction and free formaldehyd. The changes in reaction were slight in all cases. In no case was more than 1:60,000 formaldehyd found after five days incubation, and the growth of the organism was in no case inhibited. After hexamethylenamin had been taken by the mouth, those body fluids, which had taken up this substance, did not liberate more than 1 in 60,000 parts of formaldehyd when made strongly acid. This proves that hexamethylenamin was not present in sufficient concentration to furnish antiseptics, even if the whole hexamethylenamin contents be dissociated. The pus in empyema and in a pelvic abscess was found to be of high acidity, but no hexamethylenamin or formaldehyd was found in it. This he interprets as indicating that the abscess cavity was sufficiently shut off from general circulation to prevent the drug from passing in therapeutic quantities. Hinman concludes that it is reasonable to assume that infection in the body does not change the reaction of the body fluids, into which hexamethylenamin is secreted, sufficiently to cause the liberation of active quantities of antiseptic. In case of localised accumulations of pus of marked acidity, hexamethylenamin does not gain access in amounts to be of value (the gall bladder possibly excepted), and in the case of other infection in communication with the circulation, the small amount of formaldehyd formed is quickly taken up and metabolized or excreted by the kidneys. Thus the

therapeutic use of hexamethylenamin as an internal antiseptic is justified, experimentally, for urinary conditions alone, and then only when it is excreted into an acid urine.

UROLOGY.

(78) Calculous Anuria.

Lincoln Davies ("Surgery, Gynaecology and Obstetrics," June, 1914) reports two cases of calculous anuria, and discusses the etiology and treatment of this condition. He states that calculous anuria, from a practical point of view, is a purely mechanical condition, due either to the obstruction by a calculus of a congenitally single kidney, or of one whose fellow has been removed by operation or destroyed by disease, or to the blocking of both ureters by calculi. He traverses the clinical, pathological and experimental evidence bearing upon the condition known as reflex anuria, and points out that proof of the reflex inhibition of a healthy kidney by obstruction of the opposite ureter, is lacking. The few cases reported as examples of reflex inhibition of an unobstructed but diseased kidney are rather to be explained as the functional failure of an overloaded unsound organ. X-ray and cystoscopic examinations are of value in determining the site of the obstruction. The passage of a ureteral catheter may give relief in mild cases, but if this proves ineffectual, operation should not be delayed. Pyelotomy is to be preferred to nephrotomy, and the calculus should be removed if possible. Should this prove difficult, it is wiser to be content with simple drainage of the kidney. The cessation of ureteral spasm may result in the subsequent passage of the stone; if not, it can be removed later. Bilateral nephrotomy is indicated if the kidney first exposed be obviously diseased or apparently unobstructed.

(79) The Use of Collargol in Pyelography.

C. W. Vest ("Johns Hopkins Hospital Bulletin," March, 1914) states that collargol injection of the kidney pelvis has been in use for three years in the gynaecological clinic of the hospital, and that attention has been forcibly drawn to subsequent constitutional disturbances. A 15 per cent. solution was usually employed, and was injected slowly, with a piston syringe, being allowed to run out in 2 to 3 minutes. During the last six months, irrigation with sterile water has been employed as a subsequent procedure. Persistent pain occurred in about one fifth of the cases, lasting usually from 1 to 3 days, though in one case it was present for 10 days. He reports six cases in detail. In five of these marked staining of the renal and perirenal tissues was found at the operation. In one case this was widespread, and was followed by the development of a perirenal abscess. There may also be a persistent rise in temperature, even to 104° F. Urinary changes, consisting in the presence of red and white blood corpuscles, as well as granular and hyaline casts, may be

found. In one case there was still a trace of albumen after 118 days. An interesting hæmorrhagic diathesis followed collargol injection in one case, but, unfortunately, no autopsy was obtained. The author mentions a similar case, reported by Rösse, who ascribed the condition to renal injury caused by the injection, and the subsequent sudden absorption of the silver salt. Collargol should be used with great care, and only when absolutely necessary. After more extensive use, silver iodide emulsion may be found to serve as well, for it is desirable to use a medium which will throw a shadow without injuring the kidney substance.

(80) Calcified Retrovesical Hydatid Cyst.

Marion (Journ. d'Urologie No. 4, 1914) reports the case of a man, 54 years of age, who had complained of pollakuria during the daytime for two years, and of diurnal and nocturnal pollakuria, dysuria, and strangury for a shorter period. On examination, per rectum, a stone-like round tumour of the size of a small fist was discovered behind the prostate. The tumour projected into the rectum. A hydatid thrill could be felt on bimanual examination. The bladder, seen through the cystoscope, appeared normal, save for a profusion of the posterior wall. An opaque mass was seen behind the bladder on the radiogram. Marion performed abdominal section, and extirpated the cyst, which proved to be a calcified retrovesical hydatid cyst.

(81) Urethroscopy.

In discussing the indications and results of the endoscopic application of remedies to the urethra, E. Wosidlo ("Zeitsch. f. Urol." No. 3, 1914) states that the instruments which he had found most useful for this purpose are Oberlander's urethroscope and Schlenzka's irrigation urethroscope. He is of opinion that the endoscopic treatment of pathological conditions of the anterior portion of the urethra, and especially of chronic urethritis, is of great value. The manipulations include cauterization and electrolysis of inflamed and blocked lacunæ, cauterization of papillomata and granulation, excision of valve-like and transverse ridges of mucous membrane, etc. It is not of material use in cases of stricture. In connection with the endoscopic treatment of pathological conditions affecting the posterior portion of the urethra, Goldschmidt's, Lohnstein's and the author's instruments are recommended. In cases of swelling of the colliculus seminalis, and of granulations and ulcers developing in chronic urethritis, cauterization with silver nitrate and with the galvano-caustic is recommended. Polypi and cysts may be treated by cauterization, while electro-coagulation may be effected by means of weak currents, applied for a long time. Endoscopic treatment is not advisable in hypertrophy of the prostate. The author applies endoscopic methods in cases of sexual neurasthenia only

when all other treatment has failed, and when no local cause can be discovered. He is of opinion that there is no causal connexion between swelling of the colliculus and polypi, etc., and sexual neurasthenia. He has only met with severe cystitis following endoscopic treatment twice out of 600 operations. In two cases the procedure was followed by hæmorrhage. He states that a permanent and complete cure was attained in 92 per cent. of the cases, improvement lasting more than one year in 6 per cent., and improvement lasting more than six months in 1.25 per cent. Recurrences were noted in 0.25 per cent. After emphasising the fact that the symptoms for which endoscopic treatment is applied are of such a nature as to render the life of the patient miserable, he warns his readers against polypragmasia.

(82) Masked Pyonephrosis.

R. Lichtenstein (Zeitsch. f. Urol., No. 4, 1914) deals with a special form of renal tuberculosis, first described by Zuckerkandl under the term of "geschlossene Pyonephrose" (masked pyonephrosis). In this condition one kidney has ceased functioning altogether as the result of the destruction of the parenchyma and the obliteration of the pelvis. The clinical manifestations of this condition are repeated attacks of hectic fever due to absorption, dysuria and strangury. The urine is clear, and as a rule the diseased kidney is not enlarged. Cystoscopic examination, associated with ureteral catheterization, reveals a blocking of the ureter near the pelvis, and at times tubercles in the neighbourhood of the orifice of the ureter. Masked pyonephrosis is rarely non-tuberculous in origin. Lichtenstein has come across three cases of this kind on which he operated. The only symptom was intermittent fever. With the exception of slight traces of albumin, no pathological constituents were found in the urine. In one case the affected kidney was enlarged. The diagnosis was made from the result of ureteral catheterization. The author gives details of two cases of tuberculous masked pyonephrosis, which he treated by operation.

(85) Hæmaturia Following Urotropin.

Simon (Zeitsch. f. Urol., No. 4, 1914) records eight cases of hæmaturia in which large doses (up to 6 grammes a day) of urotropin had been given in cases of fracture of the skull or of meningitis. In two cases, numerous ecchymoses were found by cystoscopy in the mucous lining of the bladder. Extensive changes were found post-mortem in the vesical mucosa in four cases. These consisted of ecchymotic hæmorrhages and inflammatory infiltration. In four of the cases a strong odour of formalin was given off from the urine. The author states that similar changes can be produced in animals by means of large doses of urotropin. He ascribes these changes to the caustic action of formalin.

THE TREATMENT OF MENTAL DISEASES.

A committee, appointed by the Medico-Psychological Association of Great Britain and Ireland, have just issued a report on the status of British psychiatry and of medical officers in asylum service. An interim report was published by this Committee in 1913, in which the following defects were alluded to:—(1) Absence of proper provision for the early treatment of incipient and undeveloped cases of mental disorder. (2) Few facilities for the study of psychiatry and for research. The unsatisfactory position of assistant medical officers in respect of professional status, the prospects of a career, and the conditions of asylum service. Attached to the report are: (a) A paper by Dr. Rows on clinics and centres for teaching, (b) conclusions drawn from this paper, (c) notes on post-graduate study, (d) the disabilities of assistant medical officers in asylums as regards the medical work, (e) their restricted social conditions, (f) the salaries of medical officers, and (g) the appointment of medical superintendents and assistant medical officers. The Committee point out that even under the conditions of delayed treatment, about 33 per cent. of patients in the asylums in England and Wales recover. Evidence is adduced to show that treatment during the incipient stages of mental disorder is capable of curing a far larger percentage. Early treatment should be carried out in properly equipped psychiatric clinics. The cost of the equipment of such clinics would be considerable, but the Committee is convinced that the expenditure involved would prove to be true economy. The success of preventive medicine depends in part on the prosecution of research into the causes of disease, and on the introduction of fresh methods of treatment. It is demonstrated that under the present conditions the medical officers in the asylums cannot undertake research work in connection with psychological disturbances. Even clinical and pathological observations are usually haphazard and fruitless. By the establishment of a clinic, the carrying out of useful research would be facilitated, the medical officers would be better trained to advance psychiatric science, and treatment would consequently be improved.

The Committee further deal with the anomalous position of the medical officer, who is, in a large majority of cases, forced to lead a celibate life, who has no opportunities of enjoying home comforts, and whose financial prospects are extremely gloomy. A table is drawn up in which remedies suggested are set out side by side with the defects requiring attention. It is proposed that the early treatment of mental disorders shall be carried out in psychiatric clinics and in existing institutions. The clinics should be established in connection with Universities, medical schools and hospitals, and should be equipped for research work in and for the treatment of mental disorders. These should be available for undergraduate and post-graduate instruction. Admission to the clinics should be on a voluntary basis and also on notification to a board of control, in which case the detention should be for a limited period. It is further suggested that voluntary boarders should be admitted into public asylums, and that patients should be received at the discretion of the medical superintendent without any preliminary reference to a poor-law authority. In regard to improved facilities for study, it is suggested that clinics and centres of teaching should be so organised that a system of training carried out by educated and enthusiastic psychiatrists could be carried out, and that arrangements should be made for the interchange of assistants at the clinics and at the asylums. In dealing with the status of the medical officers of the asylum, the committee suggests that all medical officers should be appointed for a probationary period of two years, and that they should not become established officers until they have passed an examination in psychiatry, lunacy law, and asylum administration. The asylum committees should be vested with powers for the removal of medical officers who have shown themselves to be unsatisfactory. More and better paid posts should be set up; the assistant medical officer should be in a position to marry after five years' service, and should be given a house of his own either in or outside the grounds of the asylum. The work of the medical officers

in asylums should be so reorganised that the juniors should have opportunity of study, and should accept reasonable responsibility in regard to the treatment of patients.

Having come to the conclusions the Committee is forced to realise that many of the recommendations cannot be brought into effect at the present. In order to deal with the matter from a practical point of view, they propose that a conference of persons and representatives of authorities interested and concerned in psychiatry and asylum management be convened, and that the recommendations of the report be submitted to this conference, with the object of obtaining voluntary co-operation in carrying out the reforms, and of securing its support in the endeavour to bring about the necessary amendment of the lunacy laws.

In Dr. Rows' excellent article, reference is made to the conditions obtaining in America and in Germany. Professor Adolph Meyer, of Baltimore, is responsible for the organisation of the Henry Phipps' psychiatric clinic. This consists of an out-patient department with a social service, which collaborates with other agencies in the investigation and study of disease; a hospital with five subdivisions for each sex, viz., an admission ward, a division for excited cases, one for the semi-quiet, one for the quiet, and one for special cases; and three special research laboratories for clinical and bio-chemical, functional and histological, and psychological investigations. In Glessen, Professor Sommer has a clinic with 70 beds. There are five medical officers, including the director in this clinic, and between three and four hundred patients are admitted thereto each year. Professor Kraepelin has established his psychiatric clinic in Munich. There are 120 beds and between three and four thousand admissions each year, and fifteen medical officers are employed. This clinic cost £78,500 to build, an equipment which, when compared with the millions spent on asylums, cannot be regarded as extravagant. The results obtained in the Munich clinic are stated to be extremely good. The author reproduces a list of lectures given in one session, from which it can be seen that the term psychiatry includes a considerable number of definite scientific subjects. Dr. Rows recommends, on the basis of the data contained in his paper, the establishment of University psychiatric clinics, at which scientific treatment of mental disorders may be carried out in the earlier stages, and at which the future medical practitioner may be properly trained in the physiology of the mind, and in the clinical aspects and the pathology of mental disturbances. Incidentally, the expert training of those who wish to devote their lives to psychology and psychiatry may be improved, and their status, emoluments, and social position may be rendered satisfactory.

In the remainder of the appendices the various questions dealt with in the main report are illuminated in detail, the defects analysed, and the suggested remedies explained.

British Association for the Advancement of Science.

VISIT TO PERTH.

A large number of the members of British Association for the Advancement of Science, who are visiting Australia, arrived in Perth last Tuesday, 28th July, by the Ascanius. A reception was given at Government House by his Excellency the Governor, in their honour on Tuesday afternoon.

During their stay in Perth they have been offered facilities for seeing and studying various parts of the country. Excursions have been made as follows:—

- I. Botanical: To Albany and Southern Coastal district.
- II. Geological: To Kalgoorlie and other goldfields, Irwin River, and Collie Coalfields.
- III. Zoological: To caves at Yallingup and Margaret River, and Mandaring Weir.

A series of four lectures was delivered by members of the visiting scientists. The subjects and lectures being as follows:—

- I. "Why we investigate the Ocean," by Prof. W. A. Herdman, F.R.S., General Secretary of the Association.
- II. "Stars and their Movements," by Prof. Eddington, F.R.S., Prof. of Astronomy, Cambridge.
- III. "Primitive Methods of Making Fire and their Survival for Ceremonial Purposes," by Mr. Henry Balfour, M.A., Director of Pitt River Museum, Oxford.
- IV. "The Electrical Action of the Human Heart," by Prof. A. D. Waller, F.R.S., Director of the Physiological Laboratories, London.

These lectures proved of great interest, and were well attended, in each case the lecturer illustrating his remarks by means of lantern slides.

The main body of the visiting scientists, including Sir Oliver Lodge, the ex-President of the Association, arrived at Fremantle by the Orvieto on Tuesday, August 4th, and were entertained at a civic luncheon, the whole party leaving again the same day, en route to Adelaide.

ADELAIDE MEETING.

On August 8th, the members of the British Association attended a reception by the Government of South Australia, at the Town Hall, Adelaide. A very large number of scientists from Great Britain and the Commonwealth, accompanied by their wives and daughters, assembled. His Excellency, the Governor, welcomed the meeting in the name of the citizens of South Australia, and delivered a tribute on the magnificent work which the Association had carried out in the past. He referred in flattering terms to the utterances of Sir Oliver Lodge at Birmingham last year. The Premier of South Australia associated himself with His Excellency in extending a most cordial and friendly welcome to the members; in the course of a happily worded speech he made a suitable reference to the war, and to the fact that Australians were equally concerned with respect to the security of the Empire and were manifesting loyalty and devotion to the King. Sir Oliver Lodge, in his reply, stated that he felt it a great honour to be President of the Association. He was of opinion that the meetings of the Association were valuable in the fact that in the various fields of science, the workers had an opportunity of becoming personally acquainted with each other. He thought that it was to the advantage of a nation, if its Government were a little extravagant in the maintenance of scientific investigation. Sir Oliver was in receipt of a letter of welcome from the Federal President of the Australian Wattle Day League, and Lady Lodge of a beautiful spray of wattle blossom.

The following honorary degrees were conferred by the Chancellor of the University of Adelaide on the members of the Association:—

D.Sc.:—Professor William Johnson Sollas, D.Sc. (University of Oxford); Professor Albrecht Peuck, D.Sc. (Oxford); Professor Tannant William Edgeworth David D.Sc. (Oxford); Professor Ernest William Brown, D.Sc. (Cambridge); Sir Oliver Joseph Lodge, D.Sc. (London); Professor Hector Frederick Estrup, D.Sc. (Harvard); Professor G. W. O. Howe, D.Sc. (Durham); Professor Charles F. Juritz (Cape of Good Hope); Professor Felix A. M. von Luschnau, Ph.D. (Munich).

M.D.:—Professor G. Elliot Smith, M.D. (Cambridge).

M.A.:—Alfred Daniel Hall, M.A. (Oxford); Professor Philemon Coleman, M.A. (Toronto).

B.A.:—Sir Charles Prestwood Lucas, B.A. (Oxford).

B.Sc.:—Professor Thomas Hudson Beare, B.Sc. (London).

On August 11th, a number of overseas members were entertained by the Commonwealth Club at lunch at the Adelaide Town Hall. The President (Sir John Brewer) acted as host, and Sir Edward Schäfer, Sir Charles Lucas, Professor Perry and Professor Bateson spoke. The members took part in various excursions, and the presidential addresses in the sections of Geography and Agriculture were delivered.

MELBOURNE MEETING.

Over 300 members of the British Association arrived in Melbourne on Thursday, August 13th, in three special trains. In the evening, His Excellency, the Governor-General, and Lady Helen Munro Ferguson gave a reception at the Federal Government House to the members. An

official reception by the Government of Victoria was held in the Public Library on 17th inst., and several other social functions contributed to the enjoyment of the members. On August 14th a number of members received the honorary degrees of D.Sc. from the Council of the Melbourne University, viz.:—William Bateson, M.A., F.R.S.; Sir Edward Albert Schäfer, LL.D., D.Sc., M.D.; Henry Edward Armstrong, Ph.D., LL.D.; Frank Watson Dyson, M.A., LL.D.; Sir Thomas Henry Holland, D.Sc.; William Jackson Pope, M.A., M.Sc., LL.D.; Alfred William Porter, B.Sc.; Sir Ernest Rutherford, M.A., D.Sc., LL.D., Ph.D.; Johannes Walther, Ph.D.; William Morris Davis, D.Sc.; Charles Greeley Abbot, M.Sc.; Luigi Attnhony Hector Luiggi, D.Sc.

The President, Professor W. Bateson, delivered the first portion of his Address, the full text of which will be found in the present issue. An account will be given in subsequent issues of the "Medical Journal of Australia" of those parts of the proceedings of the sections of Zoology, Economic Science, Anthropology and Physiology, which have a bearing on medical matters.

SECTIONAL MEETINGS.

On August 14th, Professor A. Dendy delivered his presidential address to the Section of Zoology, and various papers on purely zoological subjects were read. On Tuesday, August 18th, a joint discussion with the Section of Botany, on the nature and origin of species, was opened by Dr. A. B. Rendle. Professor Bateson, Professor Dendy, Professor Poulton and several others took part in the discussion.

In the Section for Economic Science and Statistics, after Professor Gonner had read his presidential address, a discussion took place on town planning, in which Mr. William Davidge, and Mr. James Johnson took part. The papers read before this section on August 18th, were largely of a political or sociological nature.

The Section of Anthropology, Professor Elliot Smith dealt with the origin and spread of certain customs and inventions, and turned his attention chiefly to the history of mummification. Professor Baldwin Spencer demonstrated the Australian Ethnological Collection in the National Museum in the afternoon. On August 18th, the chief papers of medical interest were one by Professor Elliot Smith, on the brain of primitive man, and one by Professor Symington, on the relations of the inner surface of the cranial wall of the brain.

On August 14th, Professor Benjamin Moore delivered the presidential address to the Section of Physiology. The meeting was well attended. Sir Edward Schäfer, Professor Moore's former teacher, moved a vote of thanks, which was passed by acclamation. Sir Edward Schäfer read a paper on the mammary gland, Professor Dickson and Professor Halliburton spoke on the physiology of the cerebro-spinal fluid, and Dr. Embley read a paper on the evidence of co-ordinate action. On August 15th, Professor Osborne spoke on pseudo-motor action, and recurrent sensibility. The same speaker, together with Mr. Kilvington, spoke on central neural response, and the latter on artificial collateralization. On August 18th, a highly interesting discussion on anaesthetics was opened by Professor Waller, and other speakers dealt with various aspects of this question. Dr. Barrett dealt with the vision of persons who were engaged in navigation and railway service. Dr. S. Sewell spoke on the mechanism of micturition control in human beings. Miss Kincaid spoke on the biochemical significance of phosphorus, and Dr. Leon Jona on the toxæmia of pregnancy and on the pathogenesis of fever.

The following reports have been received by the Section:—

- (a) Anaesthetics.
- (b) Binocular Combination.
- (c) Calorimetric Observations.
- (d) Colour Vision and Colour Blindness.
- (e) Dissociation of Oxyhaemoglobin.
- (f) Ductless Glands.
- (g) Effect of Low Temperatures on Cold-blooded Animals.
- (h) Electro-motive Phenomena in Plants.
- (i) Miner's Nystagmus.
- (j) Naples' Zoological Station.
- (k) Structure and Function of Mammalian Heart.

BUSH NURSES IN VICTORIA.

Every hygienist recognizes that the most important factor in the building up of a powerful nation is the preservation of the health, the improvement of the physique, and the development of the mental attributes of the young. The medical control of school children, therefore, becomes a movement of national importance, and it is obvious that, in order to obtain the best results, care should be exercised in the selection of the medical inspectors. If special qualifications in medical men are required for carrying out this work, it is difficult to conceive how the duties could be properly performed by nurses whose special training in physiology and medicine is, at best, of a most elementary type. A deputation from the Victorian Branch of the British Medical Association waited on the Minister of Education recently, for the purpose of registering a formal objection to the suggestion that the services of bush nurses should be utilized in making superficial examinations of school children in remote districts, and in reporting the existence of defects such as adenoid vegetations, defective teeth, impairment of sight and hearing and the like. Dr. Kenny, the President of the Branch, pointed out that the proper persons to undertake this work were the medical officers of the department, and if their number were insufficient, additional officers should be appointed. The Victorian Trained Nurses' Association had addressed a letter to the Minister, in which it was pointed out that this association was not desirous of undertaking the work of medical practitioners. The Minister gave a most unsatisfactory reply. He pointed out that the system prevailed only in the most sparsely populated district, "where any kind of medical assistance was valuable." He maintained that nurses had certain qualifications for the work. He assured the deputation that the nurses would not be called upon to do work which should be done by a medical man. How medical assistance, carried out by incompetent and unqualified persons can be regarded as valuable is incomprehensible to us. There should be no half measures, and the Minister should see that the school child in all parts of his State receives proper medical supervision from an expert medical practitioner.

DRINK IN NEW ZEALAND.

The Auckland Prohibition League has published a list of offences and defaults due to alcoholism which have been dealt with in the Auckland Police Court during the month of July. The record includes 190 offences perpetrated by 152 individuals, of whom 14 were women. There were 82 first offenders, 2 statutory first offenders, 2 persons disorderly while drunk, 3 persons drunk while in charge of horses and vehicles, 20 instances of breaches of prohibition, 1 person guilty of indecency, 6 using obscene language, 4 cases of assault, 1 of threatening behaviour, 1 of assaulting and resisting the police, 4 of theft, 1 of damage to property, 1 of obtaining money by means of a valueless cheque, and 8 of vagrancy. Various terms of imprisonment were given, and fines totalling £91/8/- were imposed. The record is not

a very encouraging one for a State in which prohibition is carried out.

British Medical Association News.

SCIENTIFIC.

A meeting of the South Australian Branch was held in the Lister Hall, Adelaide, on Thursday, July 30th, Dr. E. W. Morris, President, in the chair.

Dr. R. E. Harrold showed a case of a very interesting pyogenic skin affection. The patient was 48 years of age. Three years before he had suffered from sores in several parts of the body. These healed under treatment, but subsequently broke out again. The sores started as "pimples with yellow heads," which coalesced, and became warty-looking, and the pus burrowed beneath the surface. The patient had worked among horses two or three years previously. There was no history of venereal disease, and the patient's wife had not had any miscarriages. On examination areas of skin over the chest and neck were red, shiny or lilac-coloured, and were undermined with pus. Several large coalesced pustules were present. Similar lesions were found on the arms and forearms. The surface of the older lesions was honeycombed, and there was some inflammatory oedema of the forearms. The skin of the lower extremities was less affected, while on the back and abdomen some of the pustules were four inches in length, and two or more in transverse diameter. The face and scalp were free, as were the soles of the feet and palms of the hands. The glands were not enlarged. There was a very slight albuminuria. The lesions had been examined microscopically three years previously; and were stated to be epitheliomatous in nature. Dr. Harrold had a fresh pathological examination made of the pustules and of the pus. The condition proved to be a papillomatous one, with infiltration with pus cells and leucocytes. The pus contained numerous acid-fast bacilli, which were more beaded, and retained Gram's stain better than Koch's bacilli. Animal inoculations with the pus yielded negative results. The patient's serum gave a negative Wassermann reaction. No reaction followed on three diagnostic injections of old tuberculin (Beranek's method). The diagnosis of leprosy was rendered improbable, partly by the negative results of the Wassermann test and partly by the clinical features of the case. Neither Dr. Herman Lawrence nor Dr. Harrold were able to suggest any more probable diagnosis than that of a pyogenic skin affection caused by an unknown acid-fast bacillus. Trichophyta and blastomycetes were sought for without result. Up to the present efforts to cultivate the bacilli had failed. The lesions on the arm were improving rapidly under X-ray treatment.

Dr. Harrold also showed a case of opacity of the cornea, which he had treated with radium. The patient had been sent to him by Dr. T. K. Hamilton. The cornea opacity was due to an ulcer of the cornea from which the patient suffered in 1899. The opacity involved two-thirds of the cornea, the central position was anæsthetic. There was constant pain and marked photophobia. Various methods of treatment had to be tried, but no relief obtained. The radium treatment began on April 3, 1914, with marked improvement. The photophobia was quickly relieved, and the opacity cleared up; all the outer nebular condition disappeared. The patient was able to read large prints. The treatment adopted was the application of radium filtered through tin, lead and cardboard, with several thicknesses of gauze. The rays were allowed to pass through the eyelid antero-posteriorly. A slight degree of opacity still persisted, but this was clearing up.

Dr. Harrold lastly showed a case of psoriasis of the nails. The psoriasis had been present on all the nails of the hands and feet for one and a half years before the appearance of the typical disease on the body and scalp. The duration of the attack from the beginning was over three years.

Dr. Bronte Smeaton spoke of a case of arterio-venous aneurysm of the left common carotid artery, and internal jugular vein, in which he had performed ligation of the carotid on the proximal side of the communication. The

patient had recovered. He also exhibited a case of gum-mata of the liver.

Dr. de Crespigny read a paper on splenic anæmia, and also dealt with the subject of acholuric family jaundice.

Dr. Poulton desired it to be entered on the minutes that Dr. H. S. Newland had presented a portrait of Lord Lister to the Branch, to be hung in the Lister Hall. He begged to move a resolution to that effect. This was carried.

At a meeting of the New South Wales Branch, held at the B.M.A. Building, Elizabeth Street, Sydney, on 14th August, Mr. David Thomas, the President, in the chair, Dr. E. W. Fairfax showed a case of leukæmia. The interest attaching to this case was chiefly centred around the presence of the large number of leucocytes of doubtful nature, and around the sudden increase and decrease in the size of the lymphatic glands, the liver, and the spleen. The patient, a married woman, aged 26, was admitted into the Royal Prince Alfred Hospital, complaining of lumps in the neck, axillæ and groins, and of difficulty in swallowing. The symptoms had been coming on for about nine months. A mass was found about the size of an orange above the left clavicle, and consisted of three or four soft discrete glands. In other situations enlarged lymphatic glands were found. The patient complained of pain over the manubrium sterni, and of cough at night. The left side of the chest expanded less freely than the right; there was impaired resonance over the upper part of the sternum, and at the base of the left lung. The breath-sounds over the areas of impaired resonance were less distinct than elsewhere. The liver extended $1\frac{1}{2}$ inches below the costal margin, and the spleen was palpable and firm. The blood-count showed 3,500,000 red blood cells, 78 per cent. hgb. 219,000 white cells, numerous nucleated red cells, including megaloblasts, as well as polychromatophilia. The increase in the leucocytes was due to an increase in large lymphocytes and to a large number of fragile cells which disintegrated on manipulation. Twelve days later the leucocyte count was 205,000, and included 10 per cent. neutrophils, 15 per cent. large and 10 per cent. small lymphocytes, 8 per cent. eosinophiles, 1 per cent. basophiles, and 50 per cent. fragile cells, as well as 6 per cent. transitional cells and large mononuclears. He found it practically impossible to classify some of the fragile cells; some of these undoubtedly resembled lymphocytes. Ten days later the symptoms of the disease had increased, and a week later the patient had an attack of urgent dyspnoea. About a month after admission the glandular swelling as well as the enlargement of the spleen and liver had increased considerably. Examination by X-ray revealed a shadow occupying the greater part of the mediastinum, which was probably caused by enlargement of mediastinal glands. Improvement set in about five weeks after admission, when the leucocyte count diminished to 19,700. The fragile cells were only 7 per cent. of the total number, while the neutrophils were 30 per cent., the lymphocytes 29 per cent., the eosinophiles 2 per cent. the basophiles 1 per cent., and the large mononuclears and transitional cells were 31 per cent. The patient was discharged much improved, but had to be readmitted a few weeks later on account of the return of all the symptoms. Dr. Fairfax regarded this case as one of lymphatic rather than myelogenous leukæmia, on account of the large predominance of lymphocytes and of the fragile cells, which he believed to be disintegrated lymphocytes. Pantón, Tidy, and Pearson have stated that myeloblasts are most commonly found in myelogenous leukæmia toward the end of the disease. The treatment of his patient consisted of irradiation with X-rays of the liver, spleen and lung bones, of increasing doses of arsenic and of benzol. Barker and Gibbs had obtained good results in spleno-myelogenous leukæmia with benzol, while Muehlmann had recorded a case of lymphatic leukæmia treated with benzol for six months, with a final fatal result. Post-mortem extensive necrosis of the liver was found. The benzol appeared to do good at first. Selling stated that rabbits tolerate benzol in large doses without exhibiting toxic symptoms, but Pappenheim produced necrosis of the liver in rabbits with benzol. Neumann also

reported a case of myeloid leukæmia treated by benzol, in which the liver was found to be necrosed.

In the discussion, Dr. W. F. Litchfield stated that at first he had hesitated in forming a diagnosis, but later on he had come to the conclusion that the case was lymphatic and not myelogenous leukæmia. He agreed with Dr. Fairfax that some of the fragmentary cells were lymphocytes. Others appeared to him to be myelocytes and premyelocytes (myeloblasts). It was difficult to reconcile this find with Ehrlich's dualistic theory. In regard to the treatment, he was interested in the improvement which followed the benzol medication. He spoke of a case of myelogenous leukæmia which cleared up entirely under X-ray treatment; the patient, however, relapsed rapidly when the treatment was discontinued.

Dr. Blackburn spoke of a case of leukæmia greatly resembling pernicious anæmia. In this case the colour index was high, and there were many nucleated red cells. In this case, one small gland above the left clavicle, of the size of a large almond, was excised for histological examination. The result was inconclusive. He suggested that many of these cases were combinations of the lymphatic and the myelogenous forms, and doubted whether it was justifiable to differentiate sharply between the two forms. Since in Dr. Fairfax's case the red cells were affected, he suggested that the bone marrow could not have been normal, and since the lymphocytes were increased in number and altered, the lymphatic glands must also have been involved.

In his reply, Dr. Fairfax stated that he had seen a case in which the blood did not contain any myelocytes in the early stages of the leukæmia, and which presented all the signs of lymphatic form. At a later date, however, myelocytes appeared in the blood, and he presumed that the case had passed over into the myelogenous form. The benzol treatment had obviously reduced the number of fragile cells.

Dr. W. F. Litchfield exhibited a case of hypertrophic stenosis of the pylorus in an infant aged 7 weeks. Peristaltic waves in the epigastrium were well marked, and readily visible. The child had vomited persistently since birth, and the vomiting had become more severe. He had stopped milk and substituted whey, with the result that the vomiting had ceased. He was hopeful that the child would soon put on weight. Many cases of this condition improved under medical treatment, and he was endeavouring to avoid handing the patient over to the surgeon for the purpose of having gastro-enterostomy performed.

Dr. C. B. Blackburn communicated the case of a man who had suffered from pernicious anæmia four years ago, and had developed a spastic paraplegia. He had been treated in the Sydney Hospital and later in the Coast Hospital for typical essential anæmia. On the 18th July, 1911, he had 856,250 red blood corpuscles, 3437 leucocytes, 29 per cent. hæmoglobin, and a colour index of 1.17. There was marked poikilocytosis and many megaloblasts. In October, 1912, the red count was 1,130,000, the leucocytes 5300, the hæmoglobin 18 per cent; in September, 1913, a marked improvement was noted, the red cells numbered 4,500,000, there was no poikilocytosis, no megalocytes, megaloblasts or nucleated red cells. On the 28th of June, 1914, the total red cells was 3,500,000, leucocytes 7200, hgb. 80 per cent., and colour index 1.1. The blood picture was practically normal. This improvement had begun suddenly without any special reason. The treatment, which consisted of arsenic and suitable diet, was not changed. The patient suddenly developed an appetite, took his food well, and improved. Nineteen months previously he had noticed difficulty in walking, which difficulty had increased gradually. There was marked ataxia, increased knee-jerks, Babinski's phenomenon, and all the other signs of spastic paraplegia. The condition was no longer progressive, and considerable improvement had been attained by means of massage and electricity. Dr. Blackburn was of opinion, however, that no further improvement would be obtained.

He also showed a boy of 18 years of age, who presented the typical signs of Friedreich's ataxia. Five years ago he was first noticed to stagger when walking. He then became clumsy in the use of his hands, and had difficulty in writing. For the past 12 months his voice had become

squeaky and husky, and jerking movements of the arms and head developed. There was typical nystagmus. The speech was explosive, the gait was ataxic, Romberg's symptom was present, and there was well-marked scoliosis. Dr. Blackburn pointed out that while there was no typical deformity of the feet, the great toe was hyper extended. There were no lightning pains and no "Argyll-Robinson's pupil." No history of syphilis in the family had been elicited.

Dr. Blackburn further showed a case of a boy aged 15, who was suffering from a condition which was difficult to diagnose with certainty. The speaker had no doubt that the original affection was an anterior poliomyelitis, which was associated with what looked like a Landry's paralysis, although he was doubtful whether this latter term stood for any definite pathological entity. There was well-marked paralysis of the leg and back muscles, and also of the muscles of the arms. The patient could move his fingers. The paralysis began in the legs and spread upwards. At first there was a slight degree of muscular tenderness, but no other sensory symptoms were present. The knee jerks were absent, but there was no reaction of degeneration. He had treated the patient by complete rest in splints, which resulted in very marked improvement. The splints were removed each day after a period of complete rest, and passive movements and massage were carefully applied.

In discussing these cases Dr. Litchfield pointed out that in the treatment of infantile paralysis by splinting and passive movements, Jones had made a great point of not stretching the affected muscles. The movements should be limited to a very small arc at first. The most important point was that the treatment should be applied early and kept up for a long time. Dr. Thomas congratulated Dr. Blackburn on the excellent result which he had obtained in the anterior poliomyelitis case. He had never seen such a good result before. In regard to the pernicious anaemia case, he raised the question whether nature had not effected the cure.

Dr. E. H. Binney exhibited a specimen of the laminae and spinous processes of several mid dorsal vertebrae from a case of Pott's disease of the spine, in which he had performed Albee's operation. This consists of ingrafting a spicule of bone taken from the tibia into a tunnel made through the spinous processes. The patient had unfortunately died six months after the operation from tubercular meningitis. It was seen in the specimen that the graft had become completely enveloped in new bone, and that a support was thus given to the diseased spines. Dr. Binney had seen Dr. Albee perform this operation in New York, and had himself carried it out on five occasions. The result had been good in regard to the healing of the graft. He considered that the evidence obtained from this case should be accepted in favour of the use of autogenous bone grafts rather than of metal or other foreign material plates.

Dr. Thomas agreed with Dr. Binney that the formation of new bone in this case was very valuable. There was a great advantage in using human bone, and not a foreign body in these cases.

MEDICO-POLITICAL.

At an extraordinary meeting of the New South Wales Branch of the British Medical Association, held on Friday, 14th August, 1914, two members of the Association were expelled, on the ground of their having accepted and continued to hold appointments as medical officers of Friendly Society Lodges contrary to the declared views of the Branch.

ANNUAL DINNER OF THE QUEENSLAND BRANCH.

The first annual dinner of the Queensland Branch was held at Café Eschenhagen, Brisbane, on August 3rd, 1914. The President, Dr. Alex. Marks, presided; Mr. Colin Frew, the President of the Queensland Odontological Society, Mr. Case, the President of the Queensland Pharmaceutical Society and some 38 members of the Branch and their friends were present. An excellent musical programme had

been arranged by Dr. McKenna, and contributed greatly to the enjoyment of the evening.

After the loyal toasts had been honoured, Dr. Jackson (Hon. Major) proposed the "Army and the Navy." Surgeon Wilson replied for the Navy and Lieutenant-Colonel Sutton (P.M.O. of the 1st Military District) replied for the Army. The Hon. W. F. Taylor, M.D., first President of the Queensland Branch, in proposing the toast of the Branch, gave an account of its foundation, which followed on the union of two previously existing medical societies. He gave some details of the recent activity of the Branch and its Council. The President, Dr. Alex. Marks, in replying, stated that he recollected having visited Dr. Taylor's house when a small boy, and having been in imminent danger of receiving corporal chastisement from Dr. Taylor for some misdemeanour long since forgotten. This occurred very shortly before the foundation of the Branch, and he felt that an apology was due to the members present on account of his extreme youth. In those days the membership of the Branch scarcely reached the number of 30; to-day the Queensland Branch boasted of 290 members. He had no hesitation in saying that the Queensland Branch of the British Medical Association stood for what was just and honourable in the profession. It endeavoured to consider public welfare, and professional honour as its aim. No unworthy or unjust action of a member would be upheld by the Branch, because he was a member. He felt sure that the Association was an organisation of irresistible force to protect the profession against injustice and unfair encroachment. He hoped that the scientific work of the Branch, which had unfortunately been somewhat neglected in the past, would, under the new arrangements proposed by the Council, be greatly improved during the coming year.

In an excellent speech, Dr. Robertson proposed the health of the visitors. Mr. Colin Frew and Mr. Case responded. The latter mentioned that the Pharmaceutical Society had written to Lieutenant-Colonel Sutton, the P.M.O., offering the services of its members and organisation in the present crisis. The P.M.O., Mr. Case said, had already availed himself of this offer, his office boy having been requisitioned to write labels. (Laughter and cheers.)

A very artistic menu card was placed on the table. On the front page a delightful picture of Lister and Asklepios sitting at a table, on which are spread wine and cigars, is drawn, with the wording, "It is the company, not the charge, that makes the feast," as a title. The drawing was the work of Miss Payne, daughter of the Secretary of the Brisbane Hospital.

The following have been nominated for membership of the New South Wales Branch:—

Dr. R. Macfarlane Brown, Yerranderie.

Dr. Augustus Ott, Sydney.

Dr. Leonard Snow, Royal Prince Alfred Hospital.

Dr. Cedric Keith Cohen, Royal Prince Alfred Hospital.

THE FRIENDLY SOCIETIES AND THE B.M.A. IN VICTORIA.

The sub-committee of five representatives of the Victorian Branch of the British Medical Association, and of five representatives of the Friendly Societies' Association held a meeting on Saturday, August 8th, 1914, at the Medical Society Hall, East Melbourne. Dr. W. R. Boyd made a statement to the effect that his colleagues had decided that since war had been declared and since it was impossible to estimate what effect the war might have on the industrial classes, it was out of the question to ask for better terms for the medical officers of the lodges at present. He therefore moved,—"That in this national emergency a recommendation be sent to the Councils of the British Medical Association (Victorian Branch), and of the Association of Friendly Societies in Victoria, to postpone the consideration of the matters now under consideration to some future date." Before the motion was put to the meeting, he and the other Association delegates made a few remarks on the statements made in Mr. Young's speech at the last Conference. With regard to the repeated charge that the British Medical Association had

stated that no member of the Ancient Order of Foresters was present at the December Conference, it was pointed out that this statement was made under a misapprehension on 4th February, 1914, and contradicted on 5th February, in the lay press, by Dr. Stewart Ferguson. The mistake arose from a letter written by Mr. Young in December, in which the writer expressed the opinion that it would be unnecessary for his Society to be represented at the Conference, since the most amicable relationship existed between the Society and its medical officers. Dr. Boyd took strong objection to the fact that Mr. Young had repeated the charge against the British Medical Association as late as a fortnight ago. In regard to the question of standard remuneration of Government medical officers, it was proved that this was considerably above £500 per annum. Mr. Young had attempted to show that no medical practitioner could be said to be sweated, if he were in receipt of £1134 per annum from lodge practice. Dr. Honman stated that at Footscray, where this amount was earned, six men were employed in earning it. In regard to the wage limit question, Dr. Boyd pointed out that the lodge medical officers naturally resented having to attend rich people at contract rates. Mr. Young was of opinion that a wage limit could not be introduced, but the delegates of the B.M.A. pointed out that it was being carried out in New South Wales. Other matters were also touched upon, and a number of statements made by Mr. Young were corrected. After a short debate, Mr. Liston seconded Dr. Boyd's motion, and Mr. Ryan stated that it was a kindly and nice thought on the part of the British Medical Association to come forward with this resolution. It was then agreed that neither side would take any steps to affect the status quo, and that Mr. Stanton Crouch and Mr. Knight, the secretaries of the two Associations, should be authorised to confer at some future date for the purpose of convening a further meeting. Dr. Boyd's motion was carried.

Naval and Military News.

A.A.M.C.

We understand that the A.A.M.C., which consists of six field ambulances, with 92 officers and men and two light-horse ambulances with 57 officers and men, in each State, is fully equipped for service. The war strength of the corps is about 8500, which represents double the number of the figures given above. In every State a large number of medical men and nurses have volunteered for service.

QUEENSLAND FIRST MILITARY DISTRICT.

The following officers have been embodied as from August 6, 1914, in connection with base depot medical stores, which has been established at the Victoria Barracks, Brisbane:—

Captain A. G. Butler, from 33rd A.A.M.C. (in charge).

Hon. Lieutenant T. F. Hall, A.A.M.C. Reserve, to be Dispenser and Clerk.

Captain W. J. Fearnley (unattached list), and Captain Stewart Kay, are posted for duty with "C" Section, 1st A.A.M.C.

The following A.A.M.C. officers have been embodied in the undermentioned appointments:—

Captain W. R. Kelly, to be Medical Officer of the 2nd Infantry.

Captain (p) J. L. Wassell to be Medical Officer, Thursday Island Defences.

Captain T. G. Ross to be Officer Commanding "C" Section, 1st A.A.M.C.

Captain A. P. Ross to be Medical Officer, Fort Lytton Defences.

Lieutenant-Colonel A. Sutton to be P.M.O., District Base. Captain H.H.B. Follitt, 1st A.A.M.C., has been transferred to A.A.M.C. Reserve.

Captain J. F. G. Luther, A.A.M.C., attached to 4th Infantry, has been transferred to 1st A.A.M.C., and to command "A" Section, vice Captain H. H. B. Follitt.

The "B" Section of the 2nd A.A.M.C. in Queensland moved from their headquarters in Blackall Street, Brisbane, en

route to Lytton, under the command of Captain Fraser. The P.M.O., Lieutenant-Colonel Sutton, and the Commanding Officer of the Corps, Major Croll, were present. A compulsory parade was held at the shed at Countess Street.

The "C" Section of the First Field Ambulance proceeded to Thursday Island, in charge of Captain T. G. Ross, with Captains Fearnley, Stewart and Kay.

Lieutenant-Colonel Sutton has received instructions from the Director-General of the Medical Service in regard to the proposed anti-typhoid inoculation of the troops in the north. These inoculations are to be carried out by the units at such intervals as the P.M.O. may approve. Lieutenant-Colonel Sutton has pointed out that persons volunteering for service should not communicate with him either personally or by telephone, as these methods involve considerable loss of time, and are unnecessary. Applicants should forward memoranda, setting forth what they had done, and what they are prepared to do.

The resident medical officers of the Brisbane Hospital and the charge nurses of the hospital have offered their services to the Commonwealth.

The General Hospital, Brisbane, has been organised as a Base Hospital, and 50 beds are at the immediate disposal of the P.M.O. The large wash-shed, adjoining the hospital has, in accordance with the scheme drawn up some years ago, been organised for additional accommodation, and can be fitted up at a moment's notice.

Hon. Major Dr. Jackson, senior surgeon to the hospital, has had charge of the arrangements, and has carried them out in a rapid and excellent manner.

The President of the Queensland Branch of the Australasian Trained Nurses' Association has offered the services of the members of the Association to the Commonwealth through the P.M.O.

The Army Nursing Service of Brisbane, which is a corps of trained nurses, have placed themselves at the service of the military authorities. This body was formed during the Boer war by the late Dr. John Thomson. The lady superintendent is Miss Perry, and Miss Isambert is the matron.

HOSPITAL CAR IN SOUTH AUSTRALIA.

The Railways Department has equipped a hospital car for the use of the military authorities should the occasion arise. The car is equipped with splints, bandages, dressings, instruments, drugs, personal and bed clothing, articles of diet, etc. The sterilizers and similar instruments are heated by gas, and a good supply of water is available. Arrangements have been made with the doctors and nurses of the Adelaide Hospital to take charge of the car if required.

NEW ZEALAND MEDICAL CORPS.

His Excellency the Governor of New Zealand has been pleased to approve of the following promotions:—Lieutenants to be Captains: Drs. Robert Neil Guthrie, Eugene Trevelyan Rogers, Bernard John Dudley, Robert Bernard Pearson Monson, Archibald Cotterell McMaster, James Ferguson Duncan, Thomas Arthur Will, Herbert Donald Robertson, Philip Randal Woodhouse, James John Eade, William Stewart, Arthur Anderson Stewart, James Alexander Cowie, James Garfield Crawford, Charles Ernest Howden, Charles Benjamin Rossiter, Charles Fulton Pattie, Thomas Errol Guthrie, Joseph Pirie Cameron, Charles Austin Paterson, Edward Henry Scott, Ernest Millington Livesey, Hugh Paterson, Ernest Boxer, Charles Treweeke Hand Newton, Robert Walter Edgar, Roderick Mackenzie Gunn, George William Gower, Robert Brown Turnbull, Herbert Bertram, Kenneth Mackenzie, Henry Lionel Hughes Steele, Victor Field Usher, Walter Stapley, Frank Lockwood Atkinson, Ernest Cuthbert Barnett, Thomas Duncan Macgregor Stout, Kenneth Edwin Tapper, James Garfield Mitchell.

VICTORIA.

Hon. Captain R. H. Ebsworth has been appointed medical officer of the Echuca (Victoria) training area.

Captain F. S. J. Poole has been appointed medical officer of the Glenelg (Victoria) training area.

Lieut.-Colonel R. H. Fetherston has been appointed head of the Red Cross voluntary aid work,

Doctors Vivian Ramsay-Smith and Gustave Alexander Melville Anderson have been appointed surgeons on probation in the Permanent Naval Forces (sea-going).

Public Health.

INFECTIVE DISEASES IN QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ended August 8, 1914:—

Notifiable Diseases.	Number of Cases.
Typhoid Fever	3
Diphtheria	53
Varicella	20
Phthisis	8
Erysipelas	2
Scarlet Fever	6
Ankylostomiasis	2
Puerperal Fever	3
Total number of cases	97

INFECTIVE DISEASES IN WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health of Western Australia for week ended July 18th, 1914:—

District.	Septi-cæmia.	Diph-theria.	Phth-isis.	Erysi-pelas.	Beri-Malaria.	Beri.
Fremantle	4	—	—	—	—	—
Cottesloe	—	—	1	—	—	—
Claremont	—	—	1	—	—	—
Perth	2	—	—	1	—	—
Perth, North	—	—	—	1	—	—
Maylands	1	—	—	—	—	—
Boulder	1	—	—	—	—	—
Bunbury	2	—	—	—	—	—
Donnybrook	—	—	1	—	—	—
Kurramia	1	—	—	—	—	—
Mt. Manet	—	—	1	—	—	—
Broome	—	—	—	—	1	1
West Guildford	1	—	—	—	—	—
Total	1	11	4	2	1	1

INFECTIVE DISEASES IN WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health of Western Australia for the week ended July 25th, 1914:—

District.	Typhoid.	Diphtheria.	Phthisis.
Fremantle	—	2	1
Fremantle, East	—	1	—
Fremantle, North	—	1	—
Subiaco	—	—	1
Perth	—	—	1
Midland Junction	—	1	—
Victoria Park	—	1	—
Kalgoorlie	1	1	2
Geraldton	1	—	—
Pingelly	—	1	—
Mt. Lawley	—	2	—
Total	2	10	5

INFECTIVE DISEASES IN PERTH, WESTERN AUSTRALIA.

The Health Officer's report for the fortnight ended 27th July, 1914, includes the statement of the returns of infective diseases:—2 cases of diphtheria, 1 of erysipelas, and 3 of tuberculosis have been notified. During the same period of last year there were 22 cases of infectious diseases against 6.

INFECTIVE DISEASES IN WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health in Western Australia for the week ended 1st August, 1914:—

District.	Typhoid.	Diph-theria.	Scarlet Fever.	Phthisis.
Subiaco	2	3	—	—
Perth	—	1	—	2
Maylands	—	1	—	—
Midland Junction	—	3	—	—
Victoria Park	—	—	1	1
Boulder	1	2	—	—
Collie	—	2	—	—
Mount Lawley	—	1	—	—
Cannington	1	—	—	—
Nanga Brook	—	1	—	—
Childlow's Well	—	—	—	1
Pingelly	—	1	—	—
Katanning	—	—	—	1
Norseman	—	2	—	—
Total	4	17	1	5

HEALTH OF PERTH.

The following notifications have been received by the City Council, Perth, during the fortnight ending 10th August, 1914:—

Tuberculosis	2
Diphtheria	4

Total 6

In 1913, 26 cases were reported during the same period.

THE METROPOLITAN COUNTY BOARD, SOUTH AUSTRALIA.

The fourth annual report of the Metropolitan County Board, dated January 31, 1914, has just been issued. Among other matters of interest contained in the report are: (1) The milk supply inquiry: An account is given of the circumstances leading up to the appointment of a Royal Commission to inquire into the conditions of the milk supply of the metropolitan area of Adelaide. This commission met for the first time on 23rd July, 1913, and is still sitting. The report of this commission, has, therefore, not yet been issued, and none of the recommendations are anticipated. (2) The abattoirs agreement. On the occasion of the opening of the metropolitan abattoirs, it was recognized that some confusion and overlapping of the duties of the county and the abattoirs board might arise. In order to minimize this confusion and overlapping, negotiations were conducted which led to the adoption of an agreement between the two boards. The terms of the agreement are set out in full on pp. 18 and 19 of the report, and the work is now being carried on in accordance with the terms of this agreement. (3) Offensive trades. On the recommendation of the chief inspector and officer of health (Dr. Borthwick) it was determined that the disposal of offal, the process of fat melting and of boiling down, as well as other offensive trades, should be undertaken exclusively in areas selected for the purpose, and that all noxious trades should be forbidden in any other area. (4) Infectious diseases. The only change in the year report in connexion with the administration of the Health Act Amendment Act, 1911, was that the County Board had undertaken the supervision of all cases occurring in their districts, charging the Local Boards with the cost of the services rendered. A number of circulars dealing with the possible outbreak of small-pox have been circulated to local boards of health.

Under the heading of general sanitation, various matters are dealt with briefly, including the adoption of uniform standard of manufactured articles of diet, as well as natural products, the regulations controlling the sale of poisons and those dealing with the contamination of fish.

VENEREAL DISEASES IN AUCKLAND.

Dr. C. E. Maguire, the medical superintendent of the Auckland Hospital, in his report submitted to the Special Committee on Venereal Diseases, recommends the provision of laboratories in the four centres, with up-to-date equipment for the purpose of carrying out the diagnostic work connected with these diseases. He is also of opinion that free treatment should be accorded to hospital out-patients suffering from syphilis and gonorrhoea, but that the in-patients should pay for treatment. His recommendations have been referred to the Hospital Committee.

WESTERN AUSTRALIAN DEAF AND DUMB INSTITUTION.

The annual meeting of the Western Australian Deaf and Dumb Institution at Cottesloe Beach was held on 25th July, 1914, Sir Edward Stone, K.C.M.G., presiding. The committee, in the seventeenth annual report, have been able to give a very satisfactory account of their undertaking. During the year three pupils left, five fresh pupils had been received, and the total number of inmates attending at the end of the year was 27. With the exception of one case of diphtheria, no serious illness had occurred. The superintendent had every reason to be satisfied with the progress made by the pupils during the year. He advocated the extension for an extra year or two of the term of school life for these afflicted children.

At a recent meeting of the Auckland Hospital and Charitable Aid Board, Dr. Florence Keller moved that steps be taken to establish at once a tubercular hospital near Auckland. She contended that the Board had procrastinated its action in connection with the provision of institutional treatment for consumptives. She was of opinion that a site should be selected at once, that plans should be prepared, and that the work should be put in hand forthwith. She regarded this as more important than the building of operating theatres. The Chairman of the Board stated that the matter had been held over for various reasons. He was advised that it would be a mistake to build small sanatoria, and further that it would be more advantageous if the Board sent all its patients to the Maungakawa institution. If this were done, all that would be required would be the erection of a few shelters at the Costley Home. The Government afforded treatment for the Board's patients at the cost of £1 per week per patient. The treatment of patients in the Sanatoria would cost the Board at least £3 per patient. After some discussion the matter was referred to a special meeting.

On July 29 a meeting was held under the auspices of the Women's Christian Temperance Union at Port Melbourne Town Hall for the purpose of discussing the proposed institution of a local school for mothers. Mrs. S. B. Cumpston took the chair. In her introductory remarks, she mentioned that the first school for mothers was opened in London in 1907, under the name of "The Mothers' and Babies' Welcome." Several of the schools had been established in England since that time, and three years ago the only school of its kind in Victoria had been opened by the Women's Christian Temperance Union in Richmond. A resolution was carried to the effect that a school for mothers should be instituted at Port Melbourne, and it is understood that a committee has been appointed to undertake the necessary organizing work forthwith.

University Intelligence.

SYDNEY UNIVERSITY.

The Senate of the University of Sydney, at its meeting of August 10, 1914, granted leave of absence to several University professors and lecturers who had been called on active military service. Dr. H. S. Stacy was appointed examiner in operative surgery. The trustees of the Walter and Eliza Hall Trust intimated to the Senate that they were prepared to found a veterinary and an agricultural fellowship of the value of £300 with £200 travelling allowance, and also a fellowship connected with the medical school. The details of the lastnamed are to be decided at a later date. The Senate determined to accept these offers.

The degree of Ch.M. was conferred in absentia upon Dr. Colin Anderson.

The following recommendation, contained in a report of the Professorial Board, was adopted:—

That a candidate who passes the leaving certificate examination in November, 1914, but requires additional subjects to complete his qualification for matriculation, shall be permitted to complete this qualification by taking these

subjects at the matriculation examination in March, 1915. Provided that such permission shall be granted only to a candidate who presents a certificate from the chairman of the leaving certificate board, stating that the candidate's age is not less than seventeen, and that the candidate has had the regular school preparation in the additional subjects required for matriculation; also, that the candidate, if he or she has failed in the required additional subjects at the leaving certificate examination, did not fail by more than a certain percentage of marks, which percentage shall be determined by the leaving certificate board.

Hospitals.

STANNARY HILLS HOSPITAL.

The Council of the Queensland Branch of the B.M.A. has decided to remove its objection to the recognition of medical appointments in connexion with the Stannary Hills Hospital. It appears that the medical officer is being paid a salary and, in addition, fees for visiting patients in their own homes. Well-to-do persons are not allowed to participate in the benefits attached to the institution, and, when attended by the medical officer, are dealt with as private patients.

VICTORIAN EYE AND EAR HOSPITAL, MELBOURNE.

Mr. T. J. Davey, the President of the committee of the Victorian Eye and Ear Hospital, stated at the annual meeting of the subscribers that there was some likelihood that the Charities Bill, now before Parliament, might be dropped on account of the opposition to this measure. Mr. Dodson, the Vice-President, was of opinion that this Bill was not required, as far as the metropolitan hospitals were concerned, although he admitted that it might serve a good purpose, in controlling the benevolent asylums. On the other hand, he strongly advocated the establishment of a metropolitan hospitals' association, and the appointment of a strong commissioner at the head of the administration of charities. In the annual report it was stated that 8408 patients had been treated, the total attendances amounting to 40,527.

THE ALFRED HOSPITAL, MELBOURNE.

It is announced in the 44th annual report of the Board of Management of the Alfred Hospital that 2757 patients were treated in the ward during the year 1913-14; 6217 out-patients received attention, as did 2757 casualty patients. The expenditure for the year amounted to £15,511, while the receipts for maintenance totalled £16,997. In moving the adoption of the report, the Chairman pointed out that if the Victorian Government had followed the lead of the New South Wales Government of granting a subsidy of pound for pound, the institute would now have a substantial balance in hand.

KAPUNDA HOSPITAL, QUEENSLAND.

The annual meeting of subscribers to the Kapunda Hospital was held on July 27, 1914, Mr. Andrew Thomson in the chair. In presenting the balance sheet, the secretary was able to show a very satisfactory account for last year. The chairman announced his intention of retiring from the position he had held for a considerable time, on account of advancing years and failing eyesight. It is proposed to build a new wing to contain four wards on the eastern side of the hospital, and to install up-to-date baths and lavatories. Other improvements will be made in the hospital within a short time.

Proceedings of Australasian Medical Board.

TASMANIA.

The following persons have been registered under the provisions of the "Medical Act of 1867," as duly qualified medical practitioners:—

Davenport, Percival Arthur Clive (Launceston), M.B., Syd., Ch.M., Syd., 1914.

QUEENSLAND.

Hill, Reginald Gordon (Charters Towers), M.R.C.S., Eng., 1911, L.R.C.P., Lond., 1911, M.B., B.S., Univ. Lond., 1913.

Rygate, Arthur Montague (Brisbane), M.R.C.S., Eng., 1897, L.R.C.P., Lond., 1897, M.B., Univ. Durh., 1898.
Thomson, Ewing George (Rockhampton), M.B., Univ. Syd., 1910.

SOUTH AUSTRALIA.

Connell, Roydon Herbert Minton, M.B., B.S., Melb., 1913.
Lind, James Charles Robert, L.R.C.P., Lond., M.R.C.S., Eng., 1911.

Medical Matters in Parliaments.

VICTORIA.

The Sewerage District Bill passed its second reading, and was considered in Committee by the Victorian Legislative Assembly on August 13. In the debate, attention was called to the insanitary conditions in some of the country towns, where sewage is allowed to contaminate the water-ways. It was suggested that a supervision of hotels and accommodation houses should be undertaken, and that the sewerage of towns should be made compulsory. Loans for these purposes could be granted on liberal terms. The Attorney-General undertook that the Government would give consideration to these points. Certain amendments were embodied in regard to the election of members of the sewerage authority, and the powers of this authority were defined.

The Health Act, 1890, Amendment Bill, which increases the power of health officers in dealing with persons from other States infected with small-pox was further considered. The debate on the second reading of the Poisons Bill was continued.

Diary for the Month.

- Aug. 20-26.—British Association Meeting, at Sydney.
- Aug. 22.—Conference Victorian Branch, B.M.A., with Friendly Societies' Association.
- Aug. 25.—New South Wales Branch, B.M.A.: Committee Meetings.
- Aug. 25.—Victorian Branch, B.M.A., Eye and Ear Section.
- Aug. 26.—Victorian Branch, B.M.A.: Council Meeting.
- Aug. 27.—South Australian Branch, B.M.A.: Ordinary Meeting.
- Aug. 28.—New South Wales Branch, B.M.A.: Ordinary Meeting.
- Aug. 28.—Melbourne Hospital Clinical Society.
- Aug. 28-31.—British Association Meeting, at Brisbane.
- Sept. 1.—New South Wales Branch B.M.A., Council Meeting.
- Sept. 11.—New South Wales Branch B.M.A., Clinical Evening.
- Sept. 11.—New South Wales Branch, B.M.A., Last Day for Nominations for Election to Federal Committee of B.M.A. in Australia.
- Sept. 15.—New South Wales Branch B.M.A., Council Meeting.
- Sept. 22.—Victorian Branch, B.M.A., Eye and Ear Section.
- Sept. 25.—New South Wales Branch B.M.A., Election of Members of Federal Committee of B.M.A. in Australia.
- Sept. 25.—New South Wales Branch B.M.A., Ordinary Meeting.
- Sept. 29.—New South Wales Branch B.M.A., Committee Meeting.
- Oct. 1 and 2.—New South Branch, B.M.A., Annual Meeting of the Delegates of the Affiliated Local Associations of Members with the Council.
- Oct. 6.—New South Wales Branch, B.M.A., Council Meeting.
- Oct. 9.—New South Wales Branch, B.M.A., Clinical Evening.
- Oct. 20.—New South Wales Branch, B.M.A., Council Meeting.
- Oct. 27.—New South Wales Branch, B.M.A., Committee Meetings.
- Oct. 27.—Victorian Branch, B.M.A., Eye and Ear Section.
- Oct. 30.—New South Wales Branch, B.M.A., Ordinary Meeting.

Medical Appointments.

Dr. H. R. Beatty has been appointed Government medical officer at Braidwood, New South Wales.

Dr. J. Dawson has been appointed Government medical officer at Walgett, New South Wales.

Doctors William Francis Quaife and John Thomas Tansey have been appointed medical officers under the Department of Public Instruction of New South Wales.

Dr. Robert Dunlop Goldie has been appointed medical officer at Scarborough, New South Wales.

Dr. G. Grantham Anderson, who resigned recently from the position of house surgeon at the Women's Hospital, Melbourne, has been appointed house surgeon to the Great Ormond Street Hospital for Children, London.

Dr. B. H. Morris, of Adelaide, has been appointed Inspector-General of Hospitals under the Mental Defectives Act.

Medical Appointments Vacant

FOR IMMEDIATE SALE.—VERY OLD-ESTABLISHED PRACTICE, within two hours' rail of Sydney. Cash Receipts £1100. Good hospital. Price for Practice and Furniture, £650; half cash, balance by bills. Vendor is going to the War. Apply to Bruck and Thomson, 15 Castlereagh Street.

FOR TRANSFER.—GOOD PRACTICE, in a Railway Town, within 200 miles from Sydney. Income £1300. Price, £450. Apply to Bruck and Thomson.

Warning Notices.

Medical Practitioners are requested not to apply for any appointment referred to below without having first communicated with the Honorary Secretary for the Branch of this Association:—

Appointment.	Hon. Secty. of Branch.
Brisbane United Friendly Societies' Institute, Lodges, etc., of the Longreach, Central Queensland, and Warwick Friendly Societies, Darling Downs, Queensland.	Queensland Branch, B.M.A. Building, Adelaide Street, Brisbane.
Swan District Medical Officer.	Western Australian Branch B.M.A., 230 St. George's Terrace, Perth.
Contract Practice in Western Australia.	Western Australian Branch B.M.A., 230 St. George's Terrace, Perth.
Goulburn Friendly Societies' Association, at Goulburn, N.S.W. Lodges at Casino, N. S. Wales. The United Friendly Societies' Association of Orange, N.S.W. Friendly Societies' Lodges, Braidwood, New South Wales. The Friendly Societies' Association, Lithgow, N.S.W.	N. S. Wales Branch, B.M.A., 30-34 Elizabeth Street, Sydney.
The Friendly Societies' Medical Association Incorporated, Adelaide.	S.A. Branch, B.M.A., 3 North Terrace, Adelaide, S.A.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to the "Medical Journal of Australia" alone, unless the contrary be stated. All communications should be addressed to "The Editor," "Medical Journal of Australia," B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.